# PROCEEDINGS



OF THE

# Biological Society of Washington

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VOLUME 44

1931

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## PUBLICATION NOTE

By a change in the By-Laws of the Biological Society of Washington, effective March 27, 1926, the fiscal year now begins in May, and the officers will henceforth hold office from May to May. This, however, will make no change in the volumes of the Proceedings, which will continue to coincide with the calendar year. In order to furnish desired information, the title page of the current volume and the list of newly elected officers and committees will hereafter be published soon after the annual election in May.

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OF THE

# BIOLOGICAL SOCIETY OF WASHINGTON

(FOR 1931—1932)

(ELECTED MAY 2, 1931)

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Alexander Wetmore, 1929–1931

*Deceased.

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The Committee on Publications declares that each paper of this volume was distributed on the date indicated on its initial page. The index and minutes of the proceedings for 1931 (pp. vii–xi; 137–140) were issued on April 2, 1932. The title and lists of officers and committees for 1931–1932 (pp. i–iv) were issued on June 29, 1931.

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Vol. 44, pp. vii–xi

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

# PROCEEDINGS.

The Society meets from October to May, on alternate Saturdays, at 8 P. M. All meetings during 1931 were held in the new lecture hall of the Cosmos Club, except the 759th meeting, which was held in the auditorium of the U. S. National Museum.

### January 10, 1931—756th Meeting.[1]

President Wetmore in the chair; 135 persons present.

New members elected: Doris M. Cochran, Alma Rutledge.

*Informal communication:* F. Thone, Account of Dr. Crile's work on autosynthetic cells.

*Formal communications:* H. F. Prytherch, Spawning, setting, and development of the oyster; R. A. Nesbit, Biological aspects of conservation of marine fishery resources, New York and New Jersey; W. B. Bell, Reestablishment of muskoxen in Alaska.

### January 24, 1931—757th Meeting.[2]

President Wetmore in the chair; 130 persons present.

New member elected: Edmund McNally.

*Informal communications:* A. A. Doolittle, Exhibition of plants growing in hermetically sealed jars; E. P. Walker, Nesting of black-crowned night herons in National Zoological Park.

*Formal communications:* A. H. Howell, Exhibition of paintings of Florida birds; V. Bailey, General features of the Upper Mississippi River Wild Life and Fish Refuge; F. M. Uhler,

[1] Abstract in Journ. Washington Acad. Sci., vol. 21, pp. 97–99, March 4, 1931.
[2] Abstract in Journ. Washington Acad. Sci., vol. 21, pp. 445–446, October 19, 1931.

Waterfowl and reptile life in the Upper Mississippi River Wild Life and Fish Refuge.

**February 7, 1931—758th Meeting.**[1]

President Wetmore in the chair; 96 persons present.

New members elected: H. C. Bryant, T. Koppanyi, W. C. Mansfield.

*Informal communications:* W. B. Bell, Note on muskoxen in Alaska; A. Wetmore, Announcement of opening of new reptile house in National Zoological Park.

*Formal communications:* T. G. Pearson, Adventures in bird protection; H. W. Terhune, Wild life protection in Alaska.

**February 28, 1931—759th Meeting.**[2]

Vice-President Jackson in the chair; 280 persons present.

*Formal communication:* R. L. Ditmars, Motion picture studies of reptiles.

**March 7, 1931—760th Meeting.**[3]

President Wetmore in the chair; 90 persons present.

*Informal communications:* F. Thone, Exhibition of recent biological publications; W. M. Mann, Note on the new reptile house; E. P. Walker, Recent acquisitions at the National Zoological Park.

*Formal communication:* C. H. Townsend, A recent expedition to the Galapagos Islands and studies of Galapagos tortoises.

**March 21, 1931—761st Meeting.**[4]

Vice-President Jackson in the chair; 63 persons present.

*Informal communications:* C. W. Stiles, Notes on the results of a recent hookworm survey; F. Thone, Exhibition of recent biological publications.

*Formal communications:* E. Cheverlange, Exhibition of paintings of fishes of Tahiti; D. E. Buckingham, The fish poison Derris; R. E. Tarbett, Control over mosquito breeding.

[1] Abstract in Journ. Washington Acad. Sci., vol. 21, pp. 446–447, October 19, 1931.
[2] Abstract in Journ. Washington Acad. Sci., vol. 21, p. 447, October 19, 1931.
[3] Abstract in Journ. Washington Acad. Sci., vol. 21, pp. 447–448, October 19, 1931.
[4] Abstract in Journ. Washington Acad. Sci., vol. 21, pp. 448–450, October 19, 1931.

**April 4, 1931—762d Meeting.**[1]

Vice-President Jackson in the chair; 42 persons present.

*Informal communication:* J. M. Aldrich, Note on bluebirds nesting in mail boxes.

*Formal communications:* H. S. Davis, Progress in experimental fish culture; C. R. Lucas, Commercial fish farming in the United States; H. B. Humphrey, The Relation of trees and other vegetation to stream flow.

**April 18, 1931—763d Meeting.**[2]

Vice-President Stiles in the chair; 75 persons present.

New member elected: Louise W. Cocke.

*Formal communications:* W. A. Hoffman, A consideration of educational, especially biological, progress in China, prefaced by some general remarks on the country and its people; M. K. Brady, The breeding of salamanders.

**May 2, 1931—764th Meeting.**[3]

**52d Annual Meeting.**

Vice-President Jackson in the chair; 10 persons present.

New member elected: S. W. Geiser.

The annual reports of the Recording Secretary and Corresponding Secretary were presented.

The following officers and members of council were elected: *President*, H. H. T. Jackson: *Vice Presidents*, C. E. Chambliss, C. W. Stiles, T. E. Snyder, H. C. Fuller; *Recording Secretary*, S. F. Blake; *Corresponding Secretary*, W. H. White; *Treasurer*, F. C. Lincoln; *Members of Council*, W. R. Maxon, A. A. Doolittle, I. N. Hoffman, E. P. Walker, T. H. Kearney.

**October 17, 1931—765th Meeting.**[4]

President Jackson in the chair; 33 persons present.

*Informal communications:* F. Thone, Observation of an albino robin; E. P. Walker, Notes on the National Zoological

[1] Abstract in Journ. Washington Acad. Sci., vol. 21, p. 450, October 19, 1931.
[2] Abstract in Journ. Washington Acad. Sci., vol. 21, p. 451, October 19, 1931.
[3] Abstract in Journ. Washington Acad. Sci., vol. 21, p. 451, October 19, 1931.
[4] Abstract to appear in Journ. Washington Acad. Sci.

Park; I. N. Hoffman, Notes on Mr. Denley's collection of pheasants.

*Formal communications:* W. Davis, Some recent biological expeditions; F. Thone, New books in biology.

**October 31, 1931—766th Meeting.**[1]

President Jackson in the chair; 48 persons present.

New member elected: W. O. Emery.

Resolutions expressing the regret of the Society at the death of J. W. Gidley were adopted.

*Informal communication:* E. P. Walker, The new A. O. U. Check list.

*Formal communications:* T. S. Palmer, The 49th Annual Meeting of the American Ornithologists' Union at Detroit, and the recent Audubon Society meeting; L. Radcliffe, A recent trip through the Upper Mississippi River Wild Life and Fish Refuge; M. M. Ellis, Biological aspects of the inland river situation.

**November 14, 1931—767th Meeting.**[2]

President Jackson in the chair; 68 persons present.

*Informal communications:* E. P. Walker, Nesting of silver gulls in the National Zoological Park; F. Thone, Exhibition of recent biological publications.

*Formal communications:* Symposium on the effects of drought upon plant and animal life; M. B. Waite, Plants; C. R. Lucas, Fish; W. B. Bell, Birds and mammals; J. A. Hyslop, Insects; M. K. Brady, Amphibians.

**November 28, 1931—768th Meeting.**[3]

President Jackson in the chair; 110 persons present.

New members elected: C. B. Chamberlain, R. H. Coleman, J. K. Doutt, T. H. Whitcroft.

*Informal communications:* F. Thone, Exhibition of recent biological publications; F. C. Lincoln, Early nesting of barn owl in Ohio.

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[1] Abstract to appear in Journ. Washington Acad. Sci.

[2] Abstract to appear in Journ. Washington Acad. Sci.

[3] Abstract to appear in Journ. Washington Acad. Sci.

*Formal communications:* T. S. Palmer, Meeting in honor of the anniversary of William Henry Flower (1831–1899); H. C. Bryant, National Parks as sanctuaries of wild life; I. N. Hoffman, Natural features in Washington city parks.

**December 12, 1931—769th Meeting.**[1]

President Jackson in the chair; 62 persons present.

New members elected: Corabel Bien, R. W. Harned.

*Informal communication:* T. S. Palmer, Note on the election of W. H. Flower to the Biological Society.

*Formal communications:* H. Friedmann, Social weavers of South Africa; H. Richards, Ecological studies on the New Jersey coast.

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[1] Abstract to appear in Journ. Washington Acad. Sci.

Vol. 44, pp. 1–2 February 21, 1931

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# A NEW OXYMYCTERUS FROM MISIONES, ARGENTINA.[1]

BY COLIN CAMPBELL SANBORN.

The Captain Marshall Field Brazilian Expedition of Field Museum of Natural History collected eight specimens of *Oxymycterus* in Misiones Territory, Argentina, which, with one received from the Museum of Comparative Zoology, collected by J. L. Peters, were referred to *Oxymycterus judex* Thomas. Comparison with ten topotypes of *judex* from Joinville, Santa Catherina, Brazil, recently received by Field Museum, shows the Misiones specimens to belong to a distinct form which is here described under the name

**Oxymycterus misionalis,** sp. nov.

*Type.*—Female (old adult); no. 26756, collection of Field Museum of Natural History; Rio Paranay, an affluent of the Rio Parana, near Caraguatay, about 100 miles south of Rio Iguassu, Misiones Territory, Argentina; Sept. 15, 1926; collected by C. C. Sanborn.

*Characters.*—One of the light-colored forms of large size and with a long tail. Lighter in color and larger than *O. judex,* heretofore the largest known form from the region, and with a longer, narrower, and flatter skull.

*Color.*—General color of the back fuscous brown shading to warm yellow brown on the sides and to almost russet on the rump. The bases of the hairs are dark gray on the back and light gray on the sides. The tips of the hairs on the back and sides are Ochraceous-Tawny (Ridgway 1912) shading to Tawny on the rump. The center line of the back is greatly darkened by the intermixture of many black hairs which give a metallic tint to the back in certain lights. Underparts buffy gray with a Warm Brown wash in the center of the belly. In other specimens this wash, which ranges from Warm Buff to pale Cinnamon Rufous, covers from a small spot in the center line to almost the whole of the underparts. Hands, feet, tail, and ears dark brown.

*Skull.*—While about the same size as in *judex* it averages longer and

[1]Published by permission of the Director, Field Museum of Natural History, Chicago.

differs further in having a narrower interorbital region, a narrower brain case less swollen laterally, longer palatal foramina, and slightly longer nasals which are more expanded anteriorly. The frontals are very flat, and in three out of six adults are slightly concave in the center.

*Measurements of type* (measurements of type of *judex* in parenthesis).—Total length, 317, (281); tail 143, (129); hind foot, 36 c. u., (34.5 s. u.); ear, 23, (22.5). Skull: Greatest length, 42.8 (42); basilar length, 33, (31.5); condylobasal length, 38.5; zygomatic breadth, 17, (17.6); interorbital breadth, 6.2, (6.8); nasals, 17.4 x 5.1, (16.2 x 4.5); breadth of brain case, 14.7 (16.4); palatilar length, 15.6 (15.5); diastema, 10.6, (10.1); palatal foramina, 9.4, (8.8); upper molar series, 5.7, (5.8).

*Range.*—Territory of Misiones, Argentina.

*Remarks.*—The very different color of *misionalis* and the narrowness of the skull always easily separate it from *judex*. None of the topotypes of *judex* reach the measurements of the type which must have been a very large specimen. *Oxymycterus delator* from across the river in Paraguay is much smaller, the greatest length of its skull being but 34.5 mm.

*Specimens examined.*—Misiones Territory, Argentina: Rio Paranay, the type and one topotype; Caraguatay, 6; Puerto Aguirre, near Rio Iguassu, 1.

Dr. Glover M. Allen, to whom this paper was sent, tells me the Museum of Comparative Zoology has four specimens from Puerto Aguirre collected by Peters.

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# DESCRIPTION OF A NEW WARBLER FROM GUADELOUPE, WEST INDIES.

BY PIERCE BRODKORB.

On comparing a large series of the Plumbeous Warbler from the West Indies I notice some local variation which seems to indicate that the species is divisible into two races. As the type of *Dendroica plumbea* originated from Dominica, I propose to separate the birds from Guadeloupe as

**Dendroica plumbea guadeloupensis,** subsp. nov.

*Type.*—Male adult; no. 66508, Museum of Comparative Zoölogy; Saint Claude, Guadeloupe, Lesser Antilles; 26 June, 1914; G. K. Noble.

*Characters.*—Similar to *Dendroica plumbea plumbea* Lawrence,[1] of Dominica and Marie Galante, but adults with upper parts clearer gray; under parts, except median portion, with sharply defined slate-gray streaks instead of uniform slate-gray. Immature above dark yellowish-green, instead of deep olive; median underparts deeper yellow; streaks on flanks, etc., sharper, olive-green instead of grayish-olive.

*Specimens examined.*—*Dendroica plumbea plumbea*, 26 (Dominica, 18; Marie Galante, 8). *Dendroica plumbea guadeloupensis*, 18 (Guadeloupe).

Specimens of *guadeloupensis* average somewhat smaller than *plumbea*, as the appended table of measurements shows. In this connection see also Ridgway, U. S. Nat. Mus., Bull. 50, II, 1902, 617.

My thanks are due to the authorities of Field Museum of Natural History, of the Museum of Comparative Zoölogy, and of the U. S. National Museum for the use of material in their collections.

[1] *Dendræca plumbea* Lawrence, Ann. N. Y. Acad. Sci., I, October 1, 1879, 47 (Dominica; type in coll. U. S. Nat. Mus. examined).

| | WING | | | TAIL | | | EXPOSED CULMEN. | | |
|---|---|---|---|---|---|---|---|---|---|
| *Dendroica plumbea plumbea* | Av. | Min. | Max. | Av. | Min. | Max. | Av. | Min. | Max. |
| 17 adult males | 64.5[1] | 61.5 | 69.0 | 55.5 | 52.0 | 59.0 | 12.2[2] | 11.5 | 13.5 |
| 4 adult females | 65.5 | 63.0 | 67.0 | 57.8 | 52.5 | 60.0 | 11.5 | 11.0 | 12.0 |
| *Dendroica plumbea guadeloupensis* | | | | | | | | | |
| 5 adult males | 63.9 | 61.5 | 68.5 | 54.9 | 52.5 | 52.5 | 11.7 | 10.5 | 12.5 |
| 4 adult females | 59.8 | 59.0 | 61.0 | 51.9 | 50.0 | 50.0 | 12.1 | 11.0 | 13.0 |

[1]Two specimens not measured on account of excessive wear.

[2]One specimen not measured.

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# A NEW SERICA FROM NEW JERSEY.

BY EDWARD A. CHAPIN.

In identifying certain specimens of the genus *Serica* (Coleoptera: Scarabaeidae) it was noticed that *Serica trociformis* Burmeister as represented in the National Collection was composite and included two species. One of these appears to be unnamed and is herewith described as:

**Serica imitans,** new species.

Form, size and coloration as in *Serica trociformis* Burm. but with upper parts very distinctly hairy and pronotum without a distinct median longitudinal groove.

*Male.*—Length 5.7 mm. (5.0–5.7 mm.), width 3.5 mm. (2.9–3.5 mm.). Color either uniform pitchy black with slight pruinose luster or bicolored, in which case the elytra are castaneous brown. In either case, the legs and antennal club are castaneous to dark brown, the antennal stem and trophi pale brown. Clypeus strongly impressed with elevated margins, anterior margin slightly reflexed and evenly recurved across its entire width, lateral incisure obsolete, discal area strongly tumid along median line, punctation strong and very crowded, each puncture umbilicate at its center and with a short seta. Front strongly alutaceous and sparsely punctate, vertex alutaceous but impunctate. Antennal club as long as stem, rather robust. Eyes small, about half divided by the canthus. Pronotum broader than long (length-width ratio = 23:35), sides nearly parallel behind middle, strongly convergent anteriorly, anterior angles nearly right, posterior angles obtuse, surface somewhat pruinose, rather coarsely and densely punctate and with a short, stiff seta arising from each puncture. Median line very faintly elevated. Scutellum moderately large, dull, with a few punctures each bearing an almost invisible hair. Elytra distinctly but not deeply sulcate, irregularly punctate, the punctures more densely placed in the sulci but not confined to them, surface dull with a slight iridescence, set with short stiff setae. Under parts (except legs) dull, pruinose, sparsely punctate and setose, legs rather shiny, first segment of hind tarsus as long as the longer of the apical tibial spines. Genitalia of similar size to those of *S. trociformis* Burm. but with the claspers shorter and broader in lateral

view and with the apices of the claspers rounded and slightly deflexed instead of being directed upward as in *S. trociformis.*

*Female.*—Similar to male in all but sex characters but averaging slightly larger. Measurements: length 5.5–6.4 mm., width 3.2–3.9 mm.

Type and paratypes, U. S. N. M. No. 43128. Type a male (black form) from Egg Harbor City, N. J., May, 1929, M. Decker, collector. Paratypes, 23 specimens, both sexes, same data; 1 female Milltown, N. J., May 27, E. L. Dickerson, collector; 40 specimens, both sexes, Rancocas Park, N. J., June 8, 1927, R. J. Sim, collector.

Paratypes in collections of Japanese Beetle Laboratory and R. J. Sim, Moorestown, N. J.: 8 specimens, both sexes, Egg Harbor City, N. J., May, 1929, M. Decker, collector; 11 specimens, both sexes, Rancocas Park, N. J., June 4, 1924, R. J. & M. B. Sim, collectors; 89 specimens, both sexes, Rancocas Park, N. J., June 8, 1927, R. J. Sim, collector; 2 specimens, males, Milltown, N. J., May 27, E. L. Dickerson, collector; 1 specimen, male, Lucaston, N. J., May 30, 1902.

This species is very close in appearance to *S. trociformis* Burm. and occurs in similar situations. In fact, the two species are collected together at times. An examination of the dates of the collected material of both species indicates that *S. trociformis* Burm. appears somewhat earlier in the season, that is, from April to June. *S. imitans* Chpn. has not been seen earlier than late May. The hairy pronotum and lack of median pronotal groove serve immediately to differentiate *S. imitans* Chpn. from *S. trociformis* Burm.

Vol. 44, pp. 7–8 February 21, 1931

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# A NEW MOLLUSK OF THE GENUS PUPOIDES FROM SOUTHERN UTAH.

BY RALPH V. CHAMBERLIN AND ELMER BERRY.

Specimens of Pupoides taken in the isolated Henry Mts. of Wayne and Garfield counties, Utah, which were first referred to *P. hordaceus* (Gabb) and then indicated as probably new,[1] prove to belong to the same species as specimens taken at Cannonville, Utah. The species is here described as new.

**Pupoides eupleura,** sp. nov.

Light horn color. Shell rimate, subcylindrical, with apex blunt; whorls 5½. The last whorl over one-half as long as the entire shell. Sutures moderately impressed. The first whorl smooth; the second gently striated; the last three with elevated, sharp and distant ribs. Columella straight and slightly dilated. Aperture truncate-ovate. Peristome white, thickened and broadly reflected.

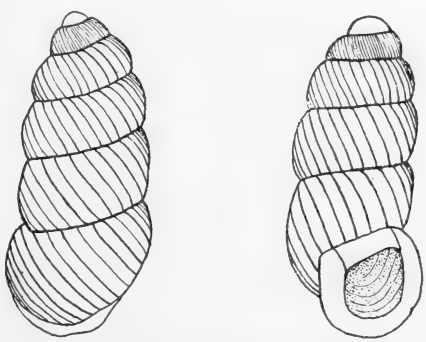

Fig. 1. *Pupoides eupleura* Chamb. and Berry, sp. nov.

Length, 3.7 mm.; width, 1.9 mm.; last whorl, 2.2 mm.; aperture, 1.5 mm.

Type locality.—Henry Mts., Utah, west of King's Ranch. Types taken

[1]Chamberlin and Berry, Mollusca from the Henry Mts. and Some Neighboring Points in Utal, Bull. Univ. of Utah, Biol. Series, Vol. 1, No. 3, p. 4, 1930.

9 Sept., 1929. (Holotype, U. of U. Zool. Mus., No. 1777; paratypes, No. 1836.)

Other Locality.—Cannonville, Utah (U. of U. Zool. Mus., No. 1842).

Conspicuously differing from *P. hordaceus* (Gabb.) in its much more cylindrical form, its larger size, the absence of apertural denticles, the possession of prominent ribs on the last three whorls, and in its horn color and moderately heavy texture.

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PROCEEDINGS
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# A NEW OREOBROMA FROM THE TRINITY MOUNTAINS OF CALIFORNIA[1].

BY C. V. MORTON.

The following new species of *Oreobroma* is described from fresh material communicated to the National Herbarium by Mr. Ira N. Gabrielson, of Portland, Oregon, who believed the plant to be undescribed. At his request it is named in honor of the original collector, Mr. John Heckner.

**Oreobroma heckneri** Morton, sp. nov.

Rootstock thick and fleshy, with numerous fibrous roots at the base; leaves in a basal rosette, spreading horizontally, spatulate, the mature ones about 7.5 cm. long, 8 mm. wide at base, 2 cm. wide at the broadest part (5.5 cm. from the base), 5 mm. thick at base, very fleshy, conspicuously keeled beneath, triangular in cross section at the base, becoming flattened toward the acute apex, glabrous, pale green at base, dark green above toward apex, deep purplish below, conspicuously fleshy-toothed above the middle, the teeth triangular, red, irregular; scape about 11 cm. long, fleshy, reddish, slightly flattened, 3 mm. wide, 2.5 mm. thick, disarticulating about 4 cm. from base after flowering; scape bearing 2 pairs of bracts, these oval, obtuse, about 1 cm. long, 7 mm. wide, conspicuously serrate throughout, the teeth similar to those of the leaves but slenderer, those of the upper pair of bracts conspicuously red-glandular at the tips; inflorescence paniculate, about 3 cm. long, the panicle and its branches subtended by pairs of bracts similar to those of the stem, but less fleshy, and with more conspicuously red-glandular teeth; pedicels very short, several at the tip of each panicle branch, but only one flower developed at a time; calyx lobes 2, free, 5 mm. high, 7 mm. wide, almost truncate at apex, conspicuously nerved, the nerves ending in conspicuous teeth tipped with red glands; petals rose-red, about 7, ligulate, 17 mm. long, 3.5 mm. wide at widest part, 1.5 mm. wide at base; stamens 9; anthers sagittate at base, 2.5 mm. long, deep yellow; filaments 10 mm. long, flattened, broadened at base, free; style about 6.5 mm. long, articulated at base; stigmas 3, oval, flattened, about 0.5 mm. long; ovary about 4.5 mm. long at anthesis; fruit not seen.

[1] Published by permission of the Secretary of the Smithsonian Institution.

Type in the U. S. National Herbarium, no. 1439965, collected about four miles north of Junction City, Trinity County, California, near Canyon Creek, by John Heckner; taken from a plant now growing in the greenhouses of the U. S. Department of Agriculture in Washington. Other plants are in cultivation in the gardens of Mr. Gabrielson.

The genus *Oreobroma* consists of about a dozen species confined to the western United States. The present species is anomalous in the genus by reason of its toothed leaves, its relationship in other respects appearing to be with *O. cotyledon* (Wats.) Howell. If it proves easy of culture, it should make a very desirable garden plant because of its attractive foliage and its unusually large flowers, these of a pleasing rose-red color.

Concerning its habitat Mr. Heckner writes that the plant grows in crevices and niches on bare or moss-covered rock bluffs. It prefers northerly exposures and tolerates neither heavy forest shade nor direct sunlight. So far as known its range is limited to the vicinity of Canyon Creek and Stuarts Fork, at altitudes of 4,000 feet upward.

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# A REPORT ON SOME AMPHIBIANS AND REPTILES FROM KANSAS, NEBRASKA, AND OKLAHOMA.

BY CHARLES E. BURT.

During August, 1930, while I was traveling through the States of Nebraska, Kansas, and Oklahoma, I took the opportunity to collect and record notes upon the small but interesting series of amphibians and reptiles reported below. Similar contributions from the Middle West have been published previously by Burt and Burt (1929 a–b). Representatives of species from all localities are being deposited in the collections of the United States National Museum.

## LIST OF SPECIES.

### TOADS.

**Bufo cognatus** Say.

Through the recent study of Myers (1930) the classification of this toad has been changed from a subspecific rating with the allied *californicus* to a full specific rank. Since some of the characters brought forth to constantly differentiate the two supposedly distinct species are confused in the single example of *cognatus* before me, I am led to believe that the whole question should be reconsidered on the basis of a large series of specimens from a wide range of localities.

The individual at hand has the typically shortened and rounded parotid protuberences of *cognatus*. It was taken at night on the pavement 5 miles north of Perry, Noble County, Oklahoma. It is like *cognatus* (using the differential criteria emphasized as most important by Myers) in the possession of a flat outer metatarsal tubercle with a free cutting edge, but like *californicus* in having, in addition to the large palmar tubercle, a small (but distinctly enlarged) tubercle at the base of the inner finger of the fore foot. Since this second tubercle is somewhat less conspicuous on the left hand than on the right, transitional variation in this feature is at once suggested. The fully inflated vocal sac is not particularly "kidney-shaped," being rather rounded in outline and scarcely longer than wide. Perhaps the half inflated sac would be more kidney-shaped (much wider

than long) and less rounded, as suggested by the variations exhibited by the series of *woodhousii* listed below.

Speaking generally of *cognatus* and *californicus*, it may be stated that the observation that the "habitats of the two forms are trenchantly different, their breeding sites are unlike, and their ranges do not appear to meet," does not necessarily argue against their being ultimately re-ranked as subspecies. In fact, it appears that valid subspecies usually do show some degree of specialization in habitat and habits before and after becoming distinct structurally, and that, as in the present case, the ranges are usually adjacent rather than co-extensive.

**Bufo woodhousii** Girard.

Several young of this toad, taken in Nebraska late in August, measured from 28 to 37 millimeters in body length (tip of snout to anus).

Specimens were secured 1 mile southeast of the Bristow Dam, near a cut-off from the Niobrara River, and 18 miles south of Atkinson, in Holt County; 3 miles east of Spencer, Boyd County; and at Deverre, Garfield County. The last individuals were congregated in the vicinity of a damp pond bed in a relatively sandy region. The wartiness of the back and the ventral granulation of the skin varies greatly in this species, at least in Nebraska, and this suggests that comparative distinctions based on this type of character should be carefully weighed before being given full credence.

FROGS.

**Acris gryllus** (Le Conte).

Cricket frogs were collected only in Nebraska. Specimens were found near a pond, 4 miles south of St. Paul, Howard County; in the grass above the bank of the Elkhorn River near the bridge just south of Atkinson, near the edge of a small stream 10 miles south and 2 miles east of Atkinson, 1 mile southeast of the Bristow Dam near a cut-off from the Niobrara River, and on the bank of Eagle Creek beneath the bridge on the road between O'Neill and the Bristow Dam, in Holt County; and near a roadside pond 1 mile north of Scotia, and in damp situations near the North Loupe River bridge on the southwestern outskirts of Scotia, in Greeley County.

**Hyla triseriata** Wied.

The swamp tree-frog is apparently common on the plains of the eastern half of Nebraska, where it occurs about small bodies of water. In this habitat it prefers to cling to grass stems and other débris rather than to live on the ground like its frequent companion, the cricket frog (*Acris gryllus*). The *triseriata* of Nebraska shows conspicuous alternate gray and black stripes dorsally, while the back of a Texan color variety (Dallas and Ellis counties) exhibits only a broken pattern which consists of blackish green spots of different sizes placed upon an olivaceous or grayish-green ground color. Therefore, there are no continuous longitudinal stripes in

this latter type. It is thought that the true significance of these apparent geographical differences may be realized only through the thorough study of larger and more representative series of specimens than those at hand.

Swamp tree-frogs were obtained in Holt County, Nebraska, in the grass at the edge of Swan Lake, in the long grass near springs which feed a small creek 10 miles south and 2 miles east of Atkinson, and in the short grass and weeds about a temporary prairie pond in the desolate sandhill country 18 miles south of Atkinson. In the last place, the species was very abundant, for here several dozen were obtained by hand in a very short time.

**Rana halecina** Linnaeus.

*Rana halecina* Linnaeus, Syst. Nat., ed. 12, pt. 1, 1766, p. 356 (first latinized binomial name for Kalm's "sillhoppetosser," type locality, New Jersey).—Boulenger, Proc. Amer. Acad. Arts and Sciences, vol. 55, 1920, p. 433.

*Rana pipiens* Schreber, Der Naturforscher, vol. 18, 1782, p. 182, pl. 4 (type locality, Pennsylvania).—Stejneger and Barbour, Check List N. Amer. Amph. Reptil., ed. 2, 1923, p. 26.—Slevin, Occas. Pap. Calif. Acad. Sci., no. 16, 1928, p. 121.

As conceived by Boulenger in his short monograph of the American frogs of the genus *Rana* (1920), the proper name for the frog commonly recognized as *Rana pipiens* Schreber (1782) appears to be *Rana halecina* Linnaeus (1768). The listing of *Rana halecina* at the time of its first appearance in the literature as a synonym of *Rana ocellata* Linnaeus does not appear to prevent its subsequent use as a valid taxonomic designation, since the name was clearly produced and latinized at this time (Linnaeus, 1768) for the frog described from New Jersey by Kalm in his "Resa til Norra America" (vol. 1, 1753, p. 379). Through careful study, Garman has shown (1888) that *ocellata* was based originally by Linnaeus (Syst. Nat., ed. 10, 1758, pt. 1, p. 211) on Brown's "*Jam.*" (p. 466, pl. 41, fig. 4), and that Brown inadvertently mixed the following five forms together as a single species: *Bufo marinus*, *Bufo americanus*, *Pipa pipa*, a species of *Leptodactylus*, and a species of *Hyla*. Thus, *ocellata* is clearly inapplicable for Kalm's frog, leaving *Rana halecina* as the oldest available name. Fortunately, in the light of prospective nomenclatorial stability, Laurenti did not describe his *Rana virginia*, which is apparently based on specimens of *halecina*, until a later date (1768).

The leopard frog was taken in Nebraska at the following places: in a damp pond bed in the relatively sandy region of Deverre, Garfield County; about pools near the North Loupe River bridge on the southwestern outskirts of Scotia, Greeley County; at the edge of a pond 9 miles east of Grand Island, Hall County; in the grass on a bank of the Elkhorn River near the bridge just south of Atkinson, in a pond 5 miles south and 1 mile east of Atkinson, in the long green grass surrounding springs which feed a small creek 10 miles south and 2 miles east of Atkinson, in prairie grass near Swan Lake, and near a cut-off from the Niobrara River 1 mile south-

east of the Bristow Dam, in Holt County; in a muddy roadside pool 5 miles west of St. Paul, Howard County; in a damp, grassy meadow 6 miles southwest of Norfolk, Madison County; and under a stone beside a riffle just above the Dane Creek bridge on the northeastern outskirts of Ord, Valley County.

LIZARDS.

**Crotaphytus collaris** (Say).

Collared lizards were found basking in the morning sunshine on rocks 17 miles northwest of Lawton, Comanche County, Oklahoma. Others were taken a few days before while basking on rocks 6 miles south of Non, and 2 miles north of Calvin, in Hughes County, Oklahoma.

**Holbrookia maculata maculata** (Girard).

These little spotted lizards were present in the sand beds near Red Deer Lake, 18 miles southwest of Wood Lake, in Cherry County, Nebraska.

**Leiolopisma laterale** (Say).

Through the courtesy of my friend, Dr. R. Chester Hughes, I have recently received specimens of this diminutive little skink from 15 miles southeast of Stillwater, Payne County, Oklahoma, "where Stillwater Creek flows into the Cimmaron River."

SNAKES.

**Coluber constrictor flaviventris** (Say).

Dead blue-racers were removed from the road 2 miles west of Bristow, Boyd County, Nebraska, and 3 miles south of Herington, Dickinson County, Kansas. Both were found in the vicinity of wheat fields.

**Elaphe laeta** (Baird and Girard).

Both of the specimens of this snake mentioned below have divided anal plates. The one from Kansas has smooth dorsal scales, 27 scale rows at the middle of the body, and 57 dorsal blotches, 44 on the body and 13 on the tail; whereas the example from Nebraska has keeled dorsal scales, 26 scale rows at the middle of the body, and 56 dorsal blotches, 42 on the body and 14 on the tail.

The Kansas specimen was found in a grassy vacant lot in the residence district of Blue Rapids, Marshall County, and the individual from Nebraska was caught while sticking its head into a bird's nest which was located under the wooden flooring of the Eagle Creek bridge, on the road between the Bristow Dam and O'Neill in northern Holt County, Nebraska. Since both Stejneger and Barbour (1923) and Blanchard (1924) give the range of *Elaphe laeta* as "Kansas, southward to central Mexico," it appears that the present finding of the species in northern Nebraska constitutes a considerable extension of its range.

**Pituophis sayi sayi** (Schlegel).

All of the bull snakes found were in agricultural districts and most of them were salvaged from the road where they had been killed by passing automobiles. It is to be regretted that the activity of tourists should thus take such a heavy toll on the life of this highly beneficial species. Specimens were secured 3 miles southeast of Spencer, Boyd County, Nebraska; 3 miles west of Blue Rapids, Marshall County, Kansas; 9 miles south of Junction City, Geary County, Kansas; 3 miles south of Lost Springs, Marion County, Kansas; and 4 miles east of Marland, Noble County, Oklahoma.

**Lampropeltis calligaster** (Harlan).

A young example of the prairie king snake, which had an undivided anal plate, was removed from the beak of a hen on a farm 4 miles north of Haddam, Washington County, Kansas, on August 28. The snake was dead and bloody when first examined, so the common chicken may well be added to the list of enemies (of the young) of this species. The specimen measures 270 millimeters in total length, has a tail length of 38 millimeters, and is no doubt of the brood of the present year (1930).

**Thamnophis sirtalis parietalis** (Say).

A large adult red-sided garter snake was removed from the road 7 miles west of Niobrara, Knox County, Nebraska, where it had been killed by a passing automobile. This locality is in a fertile river valley. A second representative of this species was observed and positively identified just before it escaped by racing into a large thicket near a cut-off from the Niobrara River about 1 mile southeast of the Bristow Dam, northern Holt County, Nebraska.

TURTLES.

**Chelydra serpentina** (Linnaeus).

A wounded snapping turtle was found in the road 3 miles northwest of Chanute, Neosho County, Kansas, just after a rain. With the advent of a generalization, as opposed to a localization, of moisture, the creature had probably wandered from the valley of a small creek that could be seen in the distance.

**Terrapene ornata** (Agassiz).

Active box tortoises were picked from the roadside at evening, 2 miles east of Oxford, Sumner County, Kansas, and 4 miles north of Mulhall, Logan County, Oklahoma.

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# THREE NEW RACCOONS FROM MEXICO AND SALVADOR.

BY E. W. NELSON AND E. A. GOLDMAN.

Continued study of the raccoons of the *Procyon lotor* group has indicated that three new geographic races in addition to those recently published (Journ. of Mamm., vol. 11, no. 4, pp. 453-459, November 11, 1930) should be segregated. In order properly to allocate the subspecies of Mexico it is necessary to fix the type locality of *Pr*[*ocyon*] *hernandezii* Wagler. No definite habitat was mentioned by the describer but the animal is currently assigned to southern Mexico. The name was based on the "Tepe Maxtlaton" of Hernandez (Rerum Medicarum Novae Hispaniae Thesaurus, Tract 1, p. 9, 1651), which appears to have been a raccoon. The Valley of Mexico, within the area best known to Hernandez, is selected by us as the type region, specimens from Tlalpam being regarded as typical.

The new forms are described as follows:

**Procyon lotor shufeldti,** subsp. nov.

CAMPECHE RACCOON.

*Type.*—From La Tuxpeña, Champoton, southeastern Campeche, Mexico. No. 177546, ♂ adult, U. S. National Museum (Biological Survey collection), collected by Percy W. Shufeldt, April 20, 1911. X catalogue No. 8575.

*Distribution.*—From the Isthmus of Tehuantepec east through Chiapas, Tabasco, and Campeche to Yucatan, and probably adjoining parts of Guatemala; limits of range unknown.

*General characters.*—A large, rather pale, short-haired subspecies, with massive skull. Similar in general to *P. l. hernandezii*, but pelage shorter, color duller, top of head grayer and back less modified by black-tipped hairs; black postauricular spots (small in *hernandezii*) still less distinct; skull more massive and differing in detail. Size about as in *P. l. crassidens*, but color decidedly paler and grayer, the upper parts less heavily overlaid with black,

and the subterminal light zone of longer hairs more extended and thus affecting the general tone; skull less flattened.

*Color.—Type:* Upper parts in general light buffy gray, with rather thinly distributed overlying black-tipped hairs resulting in a coarsely grizzled blend; nape patch rusty rufous; sides lighter, the black tips of hairs inconspicuous; top of head clearer gray, mixed with black, lacking the light buffy tone suffusing back; black mask across face extending downward along median line of muzzle to nose and upward to middle of forehead; lines bordering mask above, sides of muzzle, lips and chin white as usual in the group; underparts in general thinly overlaid with very light buffy hairs, the light brownish under fur showing through, but short and scarcely concealing the skin; throat patch brownish; ears grayish; black postauricular spots small and inconspicuous; limbs similar in color to under parts, but over hairs denser, becoming dull whitish on feet; hind limbs with outer sides of ankles brownish; tail above with eight narrow blackish rings and a black tip, alternating with light ochraceous buffy rings, less distinct and tending to become confluent below, especially near base. Varying in other specimens from paler and grayer to darker, with dorsum more profusely overspread with black, and rusty rufous nape patch indistinct or absent. *Young* (in first pelage): Similar to *P. l. hernandezii*, but paler above, especially the top of head, which is scarcely differentiated from back.

*Skull.*—Similar in size to that of *P. l. hernandezii*, but more massive; interorbital and postorbital regions broader; dentition about the same. Similar in size and angularity to that of *P. l. crassidens*, but less flattened, the frontal region higher arched behind postorbital processes; dentition and other cranial details about as in *crassidens*.

*Measurements.—Type:* Total length, 874; tail vertebrae, 292; hind foot (c.u.), 116. An adult female topotype: 909; 296; 128. *Skull* (type): Greatest length, 126.1; condylobasal length, 118.7; interorbital breadth, 26.8; least width of palatal shelf between last molars and interpterygoid fossa, 16.8; upper canine-molariform toothrow (alveolar length), 45.1; upper carnassial, crown length, 9.6, crown width, 9.8.

*Remarks.*—The general range of the present subspecies embraces the peninsula of Yucatan and adjoining territory as far south and west as the Isthmus of Tehuantepec. Like the representatives of other widely ranging subspecies inhabiting the general region it is characterized by pale colors. Occasional specimens, however, as one from Huilotepec (near Tehuantepec), Oaxaca, have the upper parts more heavily overlaid with black, indicating gradation toward the darker Central American forms. Nineteen specimens have been examined. The new form is closely allied to *P. l. hernandezii*, but the characters pointed out are distinctive. It is named for Percy W. Shufeldt, whose collections have added materially to knowledge of the mammals of Campeche and adjoining regions.

**Procyon lotor dickeyi,** subsp. nov.

SALVADOR RACCOON.

*Type.*—From Barra de Santiago, Department of Ahuachapam, south-

western Salvador. No. 12796, ♂ adult, collection of Donald R. Dickey, collected by G. D. Stirton, April 14, 1927.

*Distribution.*—Western Salvador and probably western Guatemala; limits of range unknown.

*General characters.*—A dark colored subspecies (one of the darkest of the group) of medium size; skull short and light in structure. Color about as in *P. l. crassidens;* size similar, but skull of lighter proportions, and differing in important details. Similar in general to *P. l. shufeldti*, but smaller, and much darker, the upper parts more heavily overlaid with black; cranial characters distinctive.

*Color.—Type:* Upper parts in general grayish with a faint buffy suffusion along median line, heavily and rather uniformly overlaid with black extending well down along sides; light subterminal zone of longer hairs narrow and dark under color showing through intensifying general dark tone; top of head clearer gray, heavily mixed with black, producing a somewhat grizzled effect, the black predominating; black facial mask extending downward on median line to nose and upward to middle of forehead; white supraorbital lines short and narrow, ending under ears instead of continuing posteriorly to sides of neck as in *shufeldti* and more northern forms; sides of muzzle, lips, and chin white; under parts in general thinly overlaid with buffy white, the under fur light brownish, sparse and only partially concealing the skin beneath; throat patch brownish black; ears grayish; black postauricular spots small, tending to blend with dark tone of back; forearms dull grayish, becoming soiled whitish on feet; outer surfaces of hind limbs about like sides of body, becoming brownish black near heels and soiled whitish on feet; tail above with seven blackish rings, rather indistinct near base, and a black tip, alternating with rich ochraceous buffy rings, tending to blend along median line below. Some of the topotypes are still darker, black being strongly predominant over dorsum.

*Skull.*—Characterized by thin-walled, delicate structure, with weakly developed sagittal and lambdoid crests. Most closely resembling that of *P. l. crassidens*, but of lighter proportions; frontal region less flattened; palate much narrower, a character very noticeable in the lesser distance between cheek tooth series; jugal more slender; dentition heavy, much as in *crassidens*. Compared with that of *P. l. shufeldti* the skull is decidedly smaller and less massive; frontal region of similar elevation; sagittal and lambdoid crests weaker, thinner and more trenchant; palate narrower; auditory bullae usually smaller; dentition about the same.

*Measurements.—Type:* Total length, 840; tail vertebrae, 310; hind foot, 115. Average of four adult male topotypes: 840 (800–870); 297 (300–340); 114 (110–120). Average of eight adult female topotypes: 782 (730-790); 300 (280–340); 110 (105–120). *Skull* (type and an adult male topotype, respectively): Greatest length, 114.7, 108.3; condylobasal length, 108.4, 102.7; zygomatic breadth, 79.3, 76.2; interorbital breadth, 23.9, 22.5; width of palate between last molars, 19.5, 20.9; least width of palatal shelf (between last molars and interpterygoid fossa), 16, 15.3; upper canine-molariform toothrow (alveolar length), 41.7, 40.7; upper carnassial, crown length, 7.7, 8.5, crown width, 9, 8.9. Average of seven adult female topo-

types: Greatest length, 116.1 (113–122.5;) condylobasal length, 109.7 (107.5–115.9); zygomatic breadth, 74 (70.2–80); interorbital breadth, 23.9 (22.9–25.3); width of palate between last molars, 19.7 (18.4–21); least width of palatal shelf, 15.2 (14.7–15.7); upper canine-molariform toothrow, 43.7 (42.7–45.7); upper carnassial, crown length, 9.2 (8.7–10), crown width, 10 (9.5–11).

*Remarks.*—*P. l. dickeyi* is the most northern of the known Central American subspecies, all of which are characterized by darker color than their more northern relatives. In external appearance it is about like *P. l. crassidens*, but the cranial fratures are quite distinctive. The rusty rufous nape patch often present in more northern forms is absent or only faintly indicated in some individuals. At the type locality it was found by the collector living among mangroves where specimens were obtained by shooting. Examination of stomach contents revealed crabs, which appear to be the principal food. In all of the skulls, including that of a young individual about two-thirds grown, the large cheek teeth are much more worn than is usual in raccoons of corresponding ages. This excessive wear, greatest on the molars, is evidently due to the abrasive character of the food. The new form is named for Donald R. Dickey in recognition of his notable contributions to knowledge of the fauna of Western and Central America.

*Specimens examined.*—Total number, 22, as follows:

Guatemala: Exact locality unknown, 5.

Salvador: Barra de Santiago, Department of Ahuachapam (type locality) 17 (4 skins only).[1]

**Procyon insularis vicinus,** subsp. nov.

MARIA MAGDALENA ISLAND RACCOON.

*Type.*—From Maria Magdalena Island, Tres Marias Islands, off coast of state of Nayarit, western Mexico (altidude 250 feet). No. 88982, ♂ adult, U. S. National Museum (Biological Survey collection), collected by Nelson and Goldman, May 27, 1897. Original number 11064.

*Distribution.*—Known only from Maria Magdalena Island.

*General characters.*—A pale subspecies with short, coarse pelage. Closely resembling *Procyon insularis insularis*, but dorsum more conspicuously overlaid with black, and top of head somewhat darker; cranial characters distinctive.

*Color.*—Upper parts in general light cream buff, the dorsal area rather thinly overlaid with black; sides lighter, the black-tipped hairs inconspicuous; top of head gray mixed with black, giving a grizzled effect; black mask across face extending downward to nose and upward on median line to middle of forehead; white supraorbital markings normal; sides of muzzle, lips and chin white; under parts in general thinly overlaid with very pale creamy buff, the light brown under fur showing through; throat patch brownish flecked with gray; ears grayish, the black patches at posterior base usual in the group obsolescent; limbs about like sides, becoming dull whitish on feet; hind legs brownish on outer sides near ankles; tail above

[1]Collection Donald R. Dickey.

with seven black rings and a black tip, alternating with broader cream buff rings, the dark rings interrupted below.

*Skull.*—Very similar to that of *P. l. insularis,* but braincase more highly arched; lambdoid crest rising higher over foramen magnum; basioccipital, basisphenoid and palatal shelf narrower; palatal ridges (extending posteriorly to pterygoids) less widely separated; pterygoids thinner, the posterior ends less everted; maxillary arm of zygoma normal, the lower external border not projecting and forming a distinct process separated from outer alveolar border of molars by a deep notch; zygomata very broad and heavy, as in *insularis;* foramen magnum more nearly circular (more decidedly wider than high in *insularis*); dentition about the same.

*Measurements.—Type:* Total length, 904; tail vertebrae, 313; hind foot, 135. *Skull* (type): Greatest length, 120; condylobasal length, 115.2; zygomatic breadth, 84.6; interorbital breadth, 27.7; least width of palatal shelf (between last molars and interpterygoid fossa), 14.1; upper canine-molariform toothrow (alveolar length), 42.6; upper carnassial, crown length, 8.7, crown width, 9.2.

*Remarks.*—As might be expected *P. l. vicinus* is closely allied to its near geographic neighbor, *P. l. insularis* of Maria Madre Island, and requires no very close comparison with any other form. It is distinguished externally from adjacent mainland forms, *Procyon lotor mexicanus* and *Procyon lotor hernandezii,* by shorter, coarser pelage, the general color inclining toward buffy instead of grayish, and the black postauricular spots obsolescent; and the skull differs in numerous important details, especially the higher arched braincase, much broader, heavier zygomata, narrower palatal shelf and narrower carnassials. In the lower jaw of the topotype a supernumerary tooth is wedged between the fourth premolar and the carnassial, forcing them out of line. This tooth is of about the same size and cusp development as the fourth premolar. The position of the two in relation to one another suggests early division of the dental matrix. Two specimens of this new form have been examined.

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# REMARKS ON THE HAWKS HITHERTO INCLUDED IN THE GENUS IBYCTER.

BY JAMES L. PETERS.

By way of introduction it might be well to explain the reasons for choosing the above title. Vieillot in his *Analyse d'une Nouvelle Ornithologie Élémentaire* published in 1816, proposed, on page 22, two genera, *Daptrius* and *Ibycter*, in the order named. Both were monotypic; the former had as its type *Daptrius ater* Vieillot, the latter the "Petit aigle de l'Amerique" (= *Falco americanus* Boddaert). For the last sixty-five years these two species have been regarded as congeneric, and together with four other species have been united in the genus *Ibycter*, notwithstanding that *Daptrius* was the anterior name. Just how such mistakes originate is not easy to determine, but once having originated, it is inconceivable that even the best ornithologists can keep on complacently copying them.

Leaving aside for a moment the question of generic name, "*Ibycter*" as currently constituted contains six species, an incongruous assortment, associating as it does two groups, very distinct not only in external structure, but also in habits, plumage and geographic distribution.

As far back as 1875 Ridgway, in his "*Monograph of the Polyborí*" (Bull. U. S. Geol. and Geogr. Surv. Terr. **1**, pp. 451–473) proposed to recognize the genus *Phalcoboenus*, placing *albogularis megalopterus*, and *carunculatus* in the typical subgenus, and *australis* in the subgenus *Senex*. *Ibycter* contained two monotypic subgenera, the typical one for *americanus* and *Daptrius* for *ater*.

Sushkin in 1905 (Nouv. Mém. Imp. Sci. Moscow, **16**, livr. 4) made an exhaustive study of the skeletal material of the Poly-

borinae available to him; unfortunately he lacked *albogularis* and either *carunculatus* or *megalopterus* (he had one or the other of the two latter). He also lacked "*Daptrius*" and "*Ibycter.*" As a result of his studies he proposed to recognize *Phalcoboenus* and *Senex* as genera and also upheld Ridgway's action in segregating "*Ibycter.*" Briefly summarized, Sushkin's ideas on the classification of the Polyborinae based on the material available to him, are as follows:

*Milvago* is the most primitive of the Caracaras and stands nearest of this group to the true Falcons.

*Phalcoboenus* is more specialized than *Milvago*. *Senex* is closely related to *Phalcoboenus*, but represents a higher degree of specialization. *Polyborus* is the most strongly differentiated of the Caracaras. "*Ibycter*" is either primitive, standing near *Milvago*, or differentiated at an early stage.

Both Ridgway and Sushkin adopt the same sequence of genera of Polyborinae, and both place *Milvago* between *Phalcoboenus* and *Ibycter* (*recte Daptrius*). My personal view is that it is inadvisable to break up *Phalcoboenus* into a number of genera on the basis of external characters and with the anatomy of only two species known; for that reason I do not recognize *Senex* even as a subgenus. Likewise there seems to be no logical reason for dividing *Daptrius*, with only two species, into two monotypic subgenera.

It is a pleasure to acknowledge my appreciation of the kindness of Dr. Frank M. Chapman and Mr. Charles H. Rogers in loaning necessary specimens from the collections under their respective charge.

### Genus **Daptrius** Vieillot.

*Daptrius* Vieillot, Analyse, 1816, p. 22, 68. Type, by monotypy, *Daptrius ater* Vieillot.

*Characters.*—Nostril circular, not surrounded by a distinct elevated rim; feathers on top and sides of head normal; middle toe (without claw three-fourths or more length of tarsus; throat bare, or sparsely sprinkled with bristle-like feathers; nasal tubercle not prominent.

### **Daptrius ater** Vieillot.

*Daptrius ater* Vieillot, Analyse, 1816, p. 68 ("le Brésil").

*Range.*—Tropical South America from eastern Ecuador and the lower Orinoco to Amazonian Brazil and Maranhão. Natterer recorded this species from Souza, Rio Grande do Sul, but this record is no longer accepted.

**Daptrius americanus guatemalensis** (Swann).

*Ibycter americanus guatemalensis* Swann, Syn. Accip. ed. 2, 1921, p. 14 (Guatemala).

*Range.*—Tropical Central America from Guatemala to the Canal Zone.

This race is separable from the typical one only in average larger size; where to draw the line between the two is entirely arbitrary. Unreliable sexing is a handicap in dealing with a series from Costa Rica and western Panama. There is a continual diminution in size going south through Central America into South America. Regardless of sex, wing measurements of 18 birds from Guatemala south to and including the Canal Zone run from 342–380 mm. From Darien to Surinam and eastern Peru, eight birds give 320–354.

**Daptrius americanus americanus** (Boddaert).

*Falco americanus* Boddaert, Tabl. Pl. Enlum., 1783, p. 25 (*Ex* Daubenton pl. 417, no type locality given = Cayenne *ex* Buffon).

*Range.*—Tropical South America from eastern Panama south to central Peru and through Venezuela and the Guianas to southern Brazil.

Swann (*Monogr. Bds. Prey*, Pt. 2, 1925, p. 78) sets up *Falco formosus* Latham for the birds found in Brazil from Maranhão, Goyaz and Minas Geraes southward. Hellmayr (*Field Mus. Nat. Hist. Publ.* **12**, 1929, p. 453), however, has pointed out that Latham's name is a direct synonym of *Falco americanus* Boddaert, and that if the bird that Swann calls *formosus* is valid, it must be restricted to southern Brazil, birds from Maranhão being identical with specimens from Venezuela and Guiana. Since the name *formosus* is not available, the bird will have to be renamed, but until the validity of a south Brazilian race can be confirmed, there is no point in any one making a further addition to synonymy.

Genus **Phalcobœnus** d'Orbigny.

*Phalcobœnus* d'Orbigny, Voy. Am. Mérid., livr. 2, 1834, Ois. pl. 2. Type, by monotypy, *Phalcobœnus montanus* d'Orbigny.

*Characters.*—Nostril circular, surrounded by a distinct elevated bony rim; feathers on top of head modified, either frizzled or lanceolate; middle toe (without claw) little more than one-half length of tarsus; throat largely feathered, the feathers either bristly or with filamentous tips; nasal tubercle prominent.

**Phalcobœnus australis** (Gmelin).

*Falco australis* Gmelin, Syst. Nat., vol. 1, pt. 1, 1788, p. 259 (Staten Island).

*Range.*—Islands off Tierra del Fuego, Staten Island, Falkland Islands.

**Phalcobœnus albogularis** Gould.

*Polyborus* (*Phalcobœnus*) *albogularis* Gould, Proc. Zool. Soc. London, 1837, p. 9 (Santa Cruz, Argentina).

*Range.*—Western and southern Argentina from the Sierra de Mendoza and northeastern Rio Negro to Santa Cruz.

*Ibycter circumcinctus* Scott (Auk, **27**, 1910, p. 152 (Chubut, Territory of Chubut, Argentina) has been recognized by Swann and others, but an examination of the type in the collection of Princeton University shows that there is nothing in this supposed species to warrant its separation from *albogularis*. In the type of *circumcinctus* the underparts are invaded, with dusky blackish feathers on the sides of the chest and flanks, and form an interrupted band across the foreneck. The bird appears to be fully adult, but apparently the dusky feathers are the remains of the immature plumage. Scott seems to have been misled by not comparing his bird with *albogularis* at all. He compared it only with *carunculatus* and *megalopterus*.

**Phalcobœnus megalopterus** (Meyen).

*Aquila megaloptera* Meyen, Nova Acta Acad. Caes. **16**, suppl. 1, 1834, p. 64, pl. 7 (highest regions of the Cordillera of Chile).

*Phalcobœnus montanus* d'Orbigny, Voy. Am. Mérid. livr. 2, 1834, Ois. pl. 2, f. 1, male, f. 2, female (no locality given = Andean Plateau of Bolivia *ex* Syn. Av. p. 2 in Mag. Zool. 1837, 2, or Voy. Am. Mérid. Vol. 4, livr. —, 1837, p. 51.

*Range.*—"Puna" Zone from northern Peru to Chile including the Puna of Salta and Jujuy and the Sierra de Tucuman in northwestern Argentina.

It is very much of an open question which of the two names cited above is the earlier for this Carrion Hawk. Meyen's is the one always used, so I follow that custom here. There can be no doubt that d'Orbigny's name actually appeared in 1834. The original wrappers of the Prospectus and first six livraisons of *Voy. Amér. Mérid.* are to be found in the library of the Museum of Comparative Zoölogy. That of livraison 2 bears the date 1834 and in the list of contents "Ois. pl. 2." Davies Sherborn gives both the generic and specific names as originating with d'Orbigny and Lafresnaye in their "Synopsis Avium," p. 2 in Mag. Zool. 1837.

**Phalcobœnus carunculatus** Des Murs.

*Phalcobœnus carunculatus*, Des Murs, Rev. et Mag. Zool. 1853, p. 154 (Colombia).

*Range.*—Paramo Zone of Colombia and Ecuador.

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PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON



# THE BULLFINCH OF ÎLE À VACHE, HAITI.[1]

BY ALEXANDER WETMORE.

In the preparation of a report on the collections of birds secured by the Parish-Smithsonian Expedition to Haiti of 1930, it develops that the bullfinch of Île à Vache off the southern coast of Haiti is new to science. It may be known as

**Loxigilla violacea parishi,** subsp. nov.

*Characters.*—Similar to *Loxigilla violacea affinis* (Ridgway[2]) but averaging smaller in all dimensions, including the bill.

*Description.*—Type, male adult, Île à Vache, Haiti, April 30, 1930, collected by S. W. Parish (orig. no. 502). Throat, short line above eye, and under tail-coverts somewhat darker than burnt sienna; axillars and under wing coverts with a small amount of whitish; plumage otherwise deep black, with a faint wash of deep slate on back. Bill, feet and tarsi black (from dried skin).

*Measurements.*—Males, two specimens, wing 71.1[3]–71.5 (71.3); tail 62.6–62.7,[3] (62.6); culmen from base 14.7[3]–14.7 (14.7); depth of bill at base 11.8[3]–12.3 (12.1), tarsus 19.7[3]–20.3 (20.0) mm.

Female, one specimen, wing 67.2, tail 59.0, culmen from base 12.9, depth of bill at base 10.4, tarsus 18.8 mm.

*Range.*—Known only from Île à Vache, southwestern Haiti.

*Remarks.*—The present form is described from one fully adult male, one immature male, one juvenile male, and one adult female collected on Île à Vache, off the southern coast of the southwestern peninsula of Haiti by S. W. Parish and W. M. Perrygo from April 27 to May 2, 1930, during the Parish-Smithsonian Expedition to Haiti. The smaller size indicated seems constant when compared with a long series of *L. v. affinis* from Haiti (including Gonave Island) and the Dominican Republic, as indicated by the following measurements of birds from the area just indicated:

Fifteen males, wing 74.3–79.2 (76.7), tail 61.7–69.3 (65.3), culmen from

[1] Published by permission of the Secretary of the Smithsonian Institution.

[2] *Pyhrrulagra affinis* "(Baird)" Ridgway, Auk, 1898, p. 322. (Port-au-Prince, Haiti.)

[3] Type.

base 14.2–16.5 (15.2), depth of bill at base 11.0–12.9 (12.3), tarsus 19.2–23.4 (21.1) mm.

Nine females, wing 67.2–75.8 (71.2), tail 59.8–67.0 (63.5), culmen from base 12.6–14.3 (13.6)[1], depth of bill at base 10.4–11.8 (10.9), tarsus 19.7–22.3 (21.0) mm.

This form is named in honor of the late Lee H. Parish, leader of the expedition on which the specimens were taken, to whose energy much of the material obtained was due.

[1]Average of eight specimens.

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PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



# NEW AND NOTEWORTHY NORTHWESTERN PLANTS.[1]

PART 4.

BY HAROLD ST. JOHN.

This numbered series of papers was initiated for the presentation of phytogeographical notes or the descriptions of new plants from the Pacific Northwest The first number appeared in 1928 in the Proceedings of the Biological Society of Washington. The next two numbers were printed in 1929 in the Research Studies of the State College of Washington.

## JUNCACEAE.

### Juncus articulatus L.

In the west this species has been known from southern Vancouver Island, B. C., and from Clatsop County, Oregon. Now specimens have come to hand that close the gap in the distribution.

WASHINGTON: moist clay soil near spring, Lake Stevens, Snohomish Co., July 13, 1922, *R. Sprague;* cranberry bog, Seaview, Pacific Co., July 10, 1924, *C. H. Spiegelberg* 624; on highway between Bogachiel and Hoh Rivers, elev. 600 feet, Jefferson Co., July 17, 1927, *I. C. Otis* 1553.

### Juncus Bolanderi Engelm.

This rush has been known on the Pacific coast from southern British Columbia, and from Oregon to California. Two collections recently examined show that the plant occurs in the State of Washington. These are:

WASHINGTON: 3½ miles s. e. of Roche Harbor, San Juan Islands, July 24, 1923, *M. E. Peck* 13081; on sand bar, edge of Hoh River, below Big Bend, Jefferson Co., elevation 200 feet, July 19, 1927, *I. C. Otis* 1555.

### Juncus Drummondii E. Mey., var. longifructus, n. var.

This differs from *Juncus Drummondii* of the Rocky Mountains in having the capsule 5.5–7 mm. long, markedly exceeding the perianth, which is 4–6 mm. long. In the species the perianth is 6–7 mm. long, equalling or exceeding the capsule.

[1]Contribution from the Botany Department of the State College of Washington, No. 26.

A specie differt in capsulis 5.5–7 mm. longis sepala superantibus.

British Columbia: Mt. Arrowsmith, Vancouver Island, July, 1903, *J. R. Anderson* 122.

Washington: alpine slate ledges, 6800 ft., Grouse Ridge, Mt. Baker, Whatcom Co., Aug. 8, 1923, *H. St. John* 5018 (type in Herb. State College of Washington); springs and streams, alt. 4900 ft., Olympic Mts., Aug. 30, 1898, *J. B. Flett* 828; common on banks of rivulets that flow down the mountain sides and through alpine meadows, North Fork of Bridge Creek, Sept., 1897, *A. D. E. Elmer* 652; Nason Creek, 3500 ft., Aug. 4, 1893, *J. H. Sandberg & J. B. Leiberg* 675; Mt. Stuart, Kittitas Co., Aug., 1898, *A. D. E. Elmer* 1139; dry slopes, 7000 ft. alt., Mt. Rainier, Aug., 1895, *C. V. Piper* 2169; Mt. Adams, Aug. 9, 1892, *L. F. Henderson;* in damp woods on mountains, Skamania Co., Aug. 28, 1890, *W. N. Suksdorf* 1011; moist side hills, near glacier, head of Hell Roaring River, 6000 ft., Yakima Co., Sept. 6, 1903, *J. S. Cotton* 1540; creek banks, alt. 6000 ft., head of Hell Roaring River, Yakima Co., Sept. 6, 1903, *J. S. Cotton* 1541; moist ground, 5000 ft. alt., Blue Mts., Walla Walla Co., July, 1896, *C. V. Piper* 2274.

This variety seems the dominant one in all of the Washington mountains. Only one specimen has been seen showing an intermediate condition towards the species, and this one is not quite mature, so may not be a genuine intermediate. It is *Sandberg & Leiberg* from 2–3000 ft., Nason City, July, 1893.

*J. compressus* H. B. K., γ. *subtriflorus* E. Mey.[1] is generally considered a synonym of *J. Drummondii*. The type was collected by Chamisso at Unalaschka, so it is quite possible that it represents the same variation here described as a new variety from the mountains of Washington. The writer has not seen Chamisso's type, but Meyer in the original description states that the specimen was in flower and that mature capsules were not seen. Hence, it does not seem wise to take up for a variety based upon a fruit character, a name based upon an immature specimen not showing the distinctive characters.

**Juncus Drummondii** E. Mey., var. **longifructus** St. John, forma **Davisonii,** n. f.

This differs in having its perianth dark or blackish brown and the capsules blackish. On the contrary, the var. *longifructus* has the perianth and capsule chestnut- or reddish brown, or often partially greenish. It is obvious that this new form is merely a montane melanistic extreme.

Petalis, sepalis capsulisque atrescentibus.

Washington: above 7000 ft. alt., Mt. Anderson, Jefferson Co., Aug. 31, 1928, *R. T. Davison* (type in Herb. State College of Washington).

This new plant is named in honor of the collector, Robert T. Davison of Hoquiam, Washington. Mr. Davison, when a student of the writer, was a frequent companion on collecting trips. He has continued to send in plants of interest, and now has forwarded a sizeable collection from the summit of Mt. Anderson, one of the least known of the high peaks of the Olympic Mountains.

[1] Linnaea 3: 368–369, 1828.

## LILIACEAE.

**Allium equicaeleste,** n. sp.

Bulbs erect single, lacking any rhizome, formed of a few thick scales, ovoid, often somewhat attenuate above, 10–13 mm. long, 7–11 mm. thick; outermost bulb-scale dark brown or blackish, without evident reticulations; the next scales thin whitish, with a few longitudinal unbranched nerves but no reticulations; a thin membranous hyaline basal sheath, 2–5 cm. long, enclosing the scape and leaf-bases up to the surface of the ground; leaves two, linear, channeled on the upper face, bright green above, reddish below, exceeding the scapes, narrowed to an obtuse tip, 9–15 cm. long, 0.5–1 mm. wide; scapes single slender, green, slightly compressed and narrowly 2-margined above, reddish and terete below, 7–11 cm. tall, 1–1.2 mm. in diameter; bracts two, ovate with a short acuminate tip, about 7 mm. long; umbels hemispherical or smaller, erect, 8–20-flowered; pedicels green slender, swollen at tip, 5–8 mm. long; perianth segments slightly united at base, entire ovate-lanceolate obtuse, spreading, white with a prominent green or purplish midrib, 5–6 mm. long, 2–2.5 mm. wide; stamens equaling the perianth, the filaments white subulate slightly dilated at base, the anthers brownish-purple 1 mm. long; style stout subulate, included; the young ovary at anthesis purplish, 3-lobed, each cell with a marginal obtuse ridge giving the impression that the ovary is 6-crested, but during the ripening of the capsule the carpels fill out, the ridges disappear, and the outer surface is smooth without any sign of a crest.

Bulbo ovato extus non reticulato, foliis 2 linearibus canaliculatis 0.5 mm. latis, scapo 7–11 cm. alto, floribus albis, segmentis ovato-lanceolatis obtusis 5–6 mm. longis, capsulis ecristatis.

WASHINGTON: rocky ground, 1600 ft. alt., Sixprong Creek, T. 5 N., R. 21 E., Klickitat Co., April 12, 1929, *H. St. John, G. N. Jones, J. A. Moore & F. Warren* 9787 (type in Herb. State College of Washington).

This new onion is closely related to two others that are natives of the Pacific Northwest. *Allium madidum* Wats. of the Blue Mountains of eastern Oregon differs by having the leaves 3–6 mm. wide and shorter than or a little exceeding the scape, the pedicels 8–12 mm. long, the perianth segments 8 mm. long, and the ovary with two fleshy ridges at the summit of each cell. On the contrary, *A. equicaeleste* has the leaves 0.5–1 mm. wide and exceeding the scape, the pedicels 5–8 mm. long, the perianth segments 5–6 mm. long, and the capsule without crests or ridges. *A. macrum* Wats. has been recorded from eastern Washington, but the specimens are actually of *A. collinum* Dougl. *A. macrum* of the Blue Mountains of eastern Oregon has the leaves 2–3 mm. wide, the perianth segments narrowly lanceolate acuminate, and the capsule cells bordered by a thick obtuse ridge. On the other hand, *A. equicaeleste* has the leaves 0.5–1 mm. wide, the perianth segments ovate-lanceolate obtuse, and the mature capsule without ridges or crests.

The high wooded Klickitat Hills of western Klickitat County diminish to the east and blend into lower hills with a gradual slope south to the Columbia River. These are open and arid, but through the central portion

have scattered trees of *Juniperus occidentalis* Hook. These dry hills are known as the Horse Heaven. The onion here described grew near Six-prong Creek, at an elevation of 1600 feet. This is about half way down from the crest of the Horse Heaven Hills near Bickleton, to the Columbia River near Roosevelt. In the narrow valley of the creek, which was dry, the vegetation was typically Upper Sonoran. The sagebrush, *Artemisia tridentata* Nutt., was abundant, and the bushes attained a height of 3 meters. The crests above the narrow valley were nearly bare and broken and basalt fragments were abundant in the shallow soil. Here, the white-flowered onion was abundant, and with it were *Viola trinervata* Howell, *Crocidium multicaule* Hook., and *Lomatium Gormani* (Howell) C. & R.

In allusion to the locality, the specific name is coined from the Latin *equus*, a horse, and *caelestis*, heavenly.

## PORTULACACEAE.

### Lewisia exarticulata St. John.

*L. pygmaea* (Gray) Robins., var. *aridorum* Bartlett, Bot. Gaz. **44**: 303, 1907.

Shortly after describing *L. exarticulata*, the writer happened upon the description of var. *aridorum* by Prof. Bartlett. He based it on a single collection, *Suksdorf* 5725 from Mt. Paddo (Adams), Washington. The characters sounded so similar to those of the author's species, that a comparison has been made. Mr. W. N. Suksdorf has kindly lent a duplicate type and several other specimens of this and related plants. From the two descriptions, *L. pygmaea*, var. *aridorum* would seem to differ by having usually 3–4 stipitate glands at the tips of the petals. These prove to be present also in *L. exarticulata*. A careful comparison failed to reveal any difference between the two plants. Six collections are now available. None of them indicate any breaking over the specific lines. *L. pygmaea* with its long slender peduncles, its narrow, remote bracts, and its glandless sepals, does not seem to be a close relative. There seems no reason for considering the plant other than a distinct species. Then, of course, its name would have to be *L. exarticulata* St. John, the first name in the specific category. The following additional localities can be cited.

Washington: damp sandy places, 2200 m. alt., Mount Paddo, July 24, 1906, *Suksdorf* 5725; Mount Paddo, Aug. 1880, *Suskdorf* 12442; moist level grounds, 5000–6000 ft. alt., Sept. 1, 1882, *Suksdorf* 316.

## CRUCIFERAE.

### Chorispora tenella D. C.

This annual blue-flowered mustard with indehiscent pods of two ranked locules, can now be reported from the State of Washington. It was found on roadsides along the lower Naches River, Yakima Co., on April 28, 1923, by Elias Nelson. The writer was shown the plant in June of the following year by Mr. Barber, a rancher on Deep Creek, Laurier, Stevens Co. He stated that it had grown as a weed in his alfalfa field for three years, and was spreading despite his efforts to control it. Assistance in checking

the above determination has been given by the botanists of the U. S. National Herbarium and the Kew Gardens. The plant is an occasional weed in Europe. It does not appear in the standard manuals for this country, so it is at least a recent and uncommon immigrant. Not having searched through all the periodical literature, the writer does not care to assert that these are the first records for the mustard in this country. Its native home is in Persia and the region of the Caspian Sea.

A collection from Idaho has just come to hand. It was found near Lewiston, Nez Perce Co., on April 15, 1929, by R. E. Rodock.

## SCROPHULARIACEAE.

### **Penstemon Pickettii**, n. sp.

Rigid herbaceous perennial; crown producing many subequal stems, the central erect, the outer decumbent at base, then arched ascending; stems green, short white puberulent throughout, simple at anthesis or with several of the axils producing a weak axillary branch, total height 4–5 dm.; lower leaves small, narrowly lanceolate, with a slender petiole about 1 cm. long, the blade shallowly laciniately toothed, 3 cm. long, 1 cm. broad; middle and upper leaves sessile, ovate-lanceolate or broadly so, subentire at base, deeply laciniately toothed, minutely white puberulent above, papillose-puberulent beneath, increasing in size upwards to the inflorescence, then decreasing in size up through the inflorescence, but leafy to its summit, 10–45 mm. long, 4–20 mm. wide; thyrsus narrowly lanceolate in outline, in length half or more than half the height of the plant, all the side branches ascending at about 45 degrees angle with the stem but with their flowers horizontal or declined, axis and main lateral branches short white puberulent, secondary branchlets and pedicels white glandular pilose; calyx white glandular pilose, slightly 2-lipped, cleft nearly to the base into 5 nearly equal lanceolate sepal-lobes, 5–7 mm. long; corolla glandular white pilose without, more sparsely so towards the tip, glabrous within or with a few white hispid hairs at the base of the lower lip, the base tubular, twice the length of the calyx and lavender-reddish, the middle, upper portion and throat ventricose pinkish-lavender, markedly 2-lipped, the lips rotate or reflexed, shading to clear light blue at the tips, 20–28 mm. long; anthers white or tinged with lavender, glabrous except for the hispidulous line of dehiscence, confluent at the proximal end, dehiscent in a straight common line across this end, the distal half reflexed saccate indehiscent, thus the anthers are horseshoe-shaped; filaments white glabrous; sterile filament white, tipped with lavender, flattened and narrowly spatulate at tip, the tip yellow hispid above; fertile stamens all included, but the sterile one exserted and equaling or slightly exceeding the lips; stigma equaling the throat but concealed by the upper lip of the corolla; capsule smooth, purplish or brown, sulcate at the septum, 6–8 mm. long, 4–5 mm. wide; seeds compressed, angular, 1–1.5 mm. long, the testa with prominent lenticular cells.

Washington: rock slides, Ribbon Cliff, Columbia River north of Wenatchee, Chelan Co., collected July 16, 1928, flowered in garden in

Pullman, July 18, 1929, *F. L. Pickett* 1390 (type in Herb. State College of Washington); fruiting specimens on Aug. 10th and 19th, 1929.

The new species is one of those having saccate reflexed tips of the anthers, opening only at the proximal end. Hence, it would be placed in the section *Saccanthera* of Bentham.[1]

Dr. L. Krautter in his monograph of the genus[2] accepted the section *Saccanthera* in the original sense. Dr. Pennell, who makes a much larger number of sections, called *Saccanthera* a subgenus,[3] though still attributing it to Bentham. If Bentham made this a subgenus, it was done in some publication not seen by the writer. *P. Pickettii* would probably fall into section *Heterophylli* of Pennell, though he does not include any of its closest relatives in that group. These he may possibly consider in some other section not represented in the area of his local study. The new species would be in section *Azurei* of Rydberg's treatment.[4]

The new plant here described is close to *P. laetus* Gray, which has the stems 1–3.4 dm. tall, from a woody base; the leaves lanceolate or linear-lanceolate or oblanceolate, entire; the pedicels and calyx minutely and sparingly glandular puberulent; the anthers commonly hairy at the point of insertion; and the sterile filament glabrous. *P. Pickettii* differs by having the stems 4–5 dm. tall, not woody at base; the leaves ovate-lanceolate or broadly so, laciniately toothed; the pedicels and calyx glandular pilose; the anthers glabrous except on the line of dehiscence; and the sterile filament yellow hispid. The closest relative seems to be *P. gracilentus* Gray. This differs by having the stems 2.5–4.5 dm. tall, from a woody base; the herbage glabrous, the leaves linear-oblanceolate to linear-oblong or linear, entire; the pedicels and rachis minutely glandular puberulent; and the corolla 13–20 mm. long. *P. Pickettii* may be recognized by having the stems 4–5 dm. tall, not woody at base; the herbage puberulent; the leaves ovate-lanceolate or broadly so, laciniately toothed; the pedicels glandular pilose, the rachis puberulent; and the corolla 20–28 mm. long.

This species is named in honor of Dr. Fermen Layton Pickett, Professor of Botany and Head of Department, at the State College of Washington.

## OROBANCHACEAE.

### **Orobanche columbiana** St. John & English.

Plant parasitic on roots of other plants, without chlorophyll, densely capitate glandular pilose throughout, yellowish brown at maturity; base of stem swollen and tuber-like, 1.5 cm. in diameter, 1.2 cm. high, with 7–8 deltoid bracts at anthesis, these mostly attached near its summit; bracts erose or serrulate margined, about 1 cm. long; stem simple 25 to 50 cm. high, terete and somewhat ridged, about 5 mm. in diameter; stem with about 5 lanceolate erose, obtuse bracts, 1.5–2 cm. long; inflorescence a rather dense spike, forming the upper half of the plant; flowers subtended by a

[1] De Candolle, Prodr. **10**: 329, 1846.
[2] Trans. & Proc. Bot. Soc. Penna. **2**: 186, 1911.
[3] Contrib. U. S. Nat. Herb. **20**: 327, and index VIII, 1920.
[4] Rydberg, P. A., Fl. Rocky Mts., ed. **2**: 767, 1922.

single lanceolate acuminate, erose-margined bract, about four-fifths the length of the corolla, the lower ones obtuse, the upper acute; calyx of 2 distinct parts, 8–10 mm. long or one-half to two-thirds the length of the corolla (calyx and bract enveloping the anterior and lateral sides of the carolla, posterior side of corolla naked); each part 2-lobed to about three fourths its length; lobes linear acuminate falcate, lower lobe about three-fourths the length of the upper lobe, and the basal portion asymmetrically ovate-lanceolate; corolla pale yellowish brown, tubular, arched on the posterior side, 2-lipped, and about 1.5 cm. long, the tube about 5 mm. in diameter, with rather prominent straight nerves, becoming much branched in the lobes; posterior lip with a narrow saccate outfolding below the sinus of the two lobes; lobes rounded shallow and with an undulate erose margin, about 5 mm. broad; the palate partially closed by two large oblong-elliptic saccate, somewhat inflated infoldings below the two sinuses of the lower lip; anterior lip 3-lobed, slightly spreading; lobes rounded shallow and with an undulate erose margin, about 4 mm. broad; stamens 4, alternate with the lobes, stamen wanting below the sinus of the upper lobes, stamens equalling the tube, attachment about 2–3 mm. from the base of the tube; filament broadened and deltoid at base, densely capitate glandular pilose below, sparsely pilose above; anthers oblong-elliptic versatile; the anther sacs short apiculate at base, sparsely short ciliate along the line of dehiscence, anthers glabrous along the suture, about 1.2 mm. long; stigma exserted, 2-lobed, the lobed discoid, apparently brownish, 1 mm. broad; style 9 mm. long, with the tip sharply downwardly recurved; ovary lance-ovoid tapering into the tip, two-celled, dehiscent from the posterior side, about 9–10 mm. long when mature; seeds numerous, ovoid, longitudinally wrinkled, dark brown to black, about 0.3 mm. long.

Parasitica glandulosa-pilosa, bracteis serrulatis ca. 1 cm. longis, floribus unibracteatis, calycibus bipartitis 8–10 mm. longis, corollis luteis, filamentis pilosis, stigmatibus discoideis bilobatis, fructibus lanceo-ovoideis, seminibus bruneis 0.3 mm. longis.

WASHINGTON: open grassy place in woods, near top of Fisher Landing Stone Quarry, one mile east of Fisher, Clark Co., June 11, 1928, *Carl S. English, Jr.* 1069 (type in Herb. State College of Washington); clover hay field, Carl S. English farm, one mile east of East Mill Plain School House, Clark Co., July 7, 1928, *Carl S. English, Jr.* 1150. The plant was first found by Carl S. English, Sr., in the summer of 1926, but the specimen was lost.

In trying to identify this plant all of the important floras of the United States and Canada were studied and no descriptions were found that applied to this plant. Dr. Gunther Ritter Beck von Mannagetta's "Monographie der Gattung Orobanche"[1] was consulted. The plant was carefully checked with this monograph and no description was found that would cover it. Dr. von Mannagetta divides the genus into five sections. All of the indigenous species of the western hemisphere belong to the sections *Aphyllon, Myzorrhiza,* and *Kopsiopsis.* These sections now include about 18 species. *O. Columbiana* belongs in the section *Osproleon,* which consists of about

[1]Bibliotheca Botanica 4: heft 19, pp. 1–275, 1890.

50 species, native to Europe, Africa, Asia, and Australia, and one (*O. minor*) introduced into the United States.

The discovery in the northwestern United States of a representative of this Eurasian and African section, is a find of no little interest. However, it is not so unusual as to be without parallel. A number of European or Eurasian plants not found in northeastern North America, are characteristic native plants of the Northwest. Among these may be mentioned: *Polypodium vulgare* L., *Struthiopteris spicant* (L.) Weiss, *Equisetum maximum* Lan., and *Convolvulus Soldanella* L.

This new plant, *Orobanche columbiana*, belongs in the section *Osproleon*, the subsection *Angustatae*, and the tribe *Minores*. The plants in this section differ conspicuously from the native North American species in the other sections by having the numerous flowers sessile, subtended by a single bract, the calyx twice divided completely (or partially) to the base, the calyx-segments 1–2-dentate, and the corolla 2-lipped.

The nearest relative of the new species seems to be *Orobanche Grisebachii* Reuter, which may be distinguished by having the spike 5–13 cm. long, the floral bracts ovate acuminate equaling or exceeding the corolla, the calyx-teeth equalling or exceeding the corolla, the corolla white or violet with a glabrous limb, the stamens attached 3–4 mm. above the base of the corolla, the anthers puberulent along the suture, the ovary cylindrical, and the stigma violet or purple. On the other hand, *Orobanche columbiana* St. John and English has the spike 13–30 cm. long, the floral bract lanceolate attenuate obtuse three-quarters the length of or equalling the corolla, the calyx-teeth one-half to two-thirds the length of the corolla, the corolla yellowish with a glandular pubescent limb, the stamens attached two-thirds of the distance up the corolla, the anthers glabrous along the suture, the ovary lance ovoid tapering into an acuminate beak, and the stigma apparently brownish or greenish.

The specific name is taken from the name of the Columbia River, in the broad valley of which the plant has been found.

## COMPOSITAE.

**Arnica amplexicaulis** Nutt., var. **Piperi** St. John & Warren, var. nov.

This new variety differs from the species by having 14–20 barbellate pappus bristles, and 7–9 pairs of cauline leaves which are large and ample up to the inflorescence. *A. amplexicaulis* has 21–27 plumose pappus bristles and the 4–6 pairs of cauline leaves are somewhat reduced upwards.

A specie differt in setis pappi 14–20 barbulatis, foliis caulinis oppositis 14–18 magnis amplisque.

Washington: Cape Horn, June 26, 1904, *C. V. Piper* 4962 (type in Herbarium State College of Washington); Cape Horn, June 7, 1904, *C. V. Piper* 5009.

The material examined shows that it is known only from the area in the vicinity of Cape Horn in the gorge of the Columbia River, where other interesting and localized plants have been found. The varietal name of *Piperi* was chosen to commemorate the name of Dr. Charles Vancouver Piper, an outstanding worker in systematic botany in the State of Washington.

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# A NEW POCKET GOPHER OF THE GENUS THOMOMYS FROM UTAH.[1]

BY WILLIAM HENRY BURT.

A series of pocket gophers from Zion National Park, Utah, collected by A. Brazier Howell and now in the Dickey collection, California Institute of Technology, represents an apparently undescribed race of the genus *Thomomys*. Since Bailey's revision of the genus (North American Fauna, no. 39, 1915) additional material accumulating in museums has made it possible to distinguish several races of the *perpallidus* group within the general range ascribed to *Thomomys perpallidus aureus* J. A. Allen by Bailey (*ibid.* pp. 26, 74), thus restricting the range of *aureus* to a smaller and smaller area. In his recent description of three new pocket gophers from Utah and Nevada, Hall (Univ. Calif. Publ. Zool., **32**, no. 6, 443–447) refers two specimens from Zion National Part to his newly described subspecies *Thomomys perpallidus centralis*. Of these two specimens Hall (*ibid.* p. 445) says:

"Two specimens, nos. 35357 and 35358, Mus. Vert. Zool., from Zion National Park, Utah, agree with *centralis* in extent of the post-auricular black patch and in having the underparts colored like the upper parts rather than white as in *aureus*. In skull characters these two specimens are intermediates as between *aureus* and *centralis;* but, in the aggregate the skull characters, exclusive of the color characters cited, make them referable to *centralis*."

The series of gophers at hand shows the Zion National Park gopher to be a distinct race and it is herewith described as

[1]Contribution from the California Institute of Technology.

**Thomomys perpallidus planirostris,** subsp. nov.

ZION PARK POCKET GOPHER.

*Type.*—Male adult, skull and skin; no. 8395, collection of Donald R. Dickey; Zion National Park, Washington County, Utah; May 4, 1920; collected by A. Brazier Howell; original no. 2184.

*Subspecific characters.*—A *Thomomys* of the *perpallidus* group (see Bailey, *op. cit.* pp. 33, 68–80). Resembles *aureus* in size and coloration of upperparts, but averaging slightly smaller (compare measurements with those given by Hall, *op. cit.* p. 446), with a longer tail and with coloration of underparts between "vinaceous cinnamon" (color terms in quotation marks from Ridgway, Color Standards and Color Nomenclature, 1912) and "cinnamon" rather than white as in *aureus;* upperparts rich "sayal brown" becoming dusky on nose; black post-auricular patches distinct; tail light cinnamon; dorsal surfaces of feet whitish; cheek border of mouth "dusky brown"; feet relatively large; claws on fore feet long and slender. Skull similar in general shape to that of *centralis;* zygomatic arches wide spreading, usually slightly narrower at anterior than at posterior portion; dorsal surface of skull slightly arched in lateral view; dorsal surface of rostrum, at posterior termination of nasals, flat or slightly concave in transverse section; premaxillae broad, projecting well past the nasals; audital bullae relatively small and irregular in outline; interpterygoid space broadly V-shaped; palate only slightly arched between molar series; rostrum heavy; brain case flattened dorsoventrally.

*Comparisons.*—Comparisons are here made with topotypical series of *aureus, centralis, aureiventris,* and *albicaudatus,* all kindly loaned through the courtesy of the staff of the Museum of Vertebrate Zoology of the University of California. *Thomomys perpallidus planirostris* differs from *aureus* in the cinnamon rather than white coloration of underparts, smaller size, relatively and actually longer tail, longer and more slender claws on fore feet, greater extension of premaxillae posterior to nasals, smaller audital bullae, wider premaxillae, flat or concave rather than convex transverse dorsal outline of rostrum, V-shaped interpterygoid space, and the slight arching of the palate between the molar series, the palate being well arched in *aureus.* Differs from *centralis* in the richer "sayal brown" of the upperparts, deeper "cinnamon" of the underparts, larger hind foot, longer claws on fore foot, slightly smaller audital bullae, wider premaxillae, and flat instead of convex dorsal surface of rostrum. Differs from *Thomomys perpallidus aureiventris* Hall in darker coloration of underparts, lighter coloration of cheek border of mouth, longer tail, larger hind foot, longer claws on fore foot, smaller audital bullae, flatter rostrum, heavier premaxillae, and less distinctly V-shaped interpterygoid space. Differs from *Thomomys perpallidus albicaudatus* Hall in distinctly lighter coloration, longer tail, larger hind foot, smaller audital bullae, less distinctly V-shaped interpterygoid space, heavier premaxillae, and flatter skull in rostral region.

*Measurements of type.*—Total length, 245 mm.; tail vertebrae, 78; hind foot, 32; claw of middle toe of front foot as measured from the under side,

9.7. Skull: basilar length of Hensel, 36.4; length of nasals, 14.2; zygomatic breadth, 27.2; mastoid breadth, 20.8; interorbital constriction, 7.2; alveolar length of upper molar series, 8.3; width of rostrum, 9.4; extension of premaxillae posterior to nasals, 3.9

*Distribution.*—Southwestern Utah, limits of range at present unknown.

*Remarks.*—The subspecies *planirostris* grades into *centralis* on the west and south. It probably grades into *aureus* on the east and *aureiventris* on the north; however, sufficient material is not at hand to determine the exact limits of its range. In skin characters it is closest to *aureus*, but in skull characters its affinities are nearest *centralis*. Seven specimens at hand from Washington, Washington County, Utah, although tending toward *centralis*, are closer to *planirostris* and are referable to that subspecies.

I wish to acknowledge my indebtedness to Mr. Donald R. Dickey for constructive criticism and helpful suggestions in the preparation of this manuscript.

*Specimens examined.*—Twenty-two skins with skulls from Zion National Park and seven skins with skulls from Washington, Washington County, Utah.

Average and Extreme Measurements in Millimetres of Adult Topotypes of *Thomomys perpallidus planirostris*.

| | *Males* | *Females* |
|---|---|---|
| Number of Specimens | 8 | 8 |
| External measurements: | | |
| Total length | 238.3 (222–261) | 215 (205–228) |
| Tail vertebrae | 75.6 (66–83) | 71 (61–78) |
| Hind foot | 32.4 (31–34) | 30.9 (30–33) |
| Claw of middle toe of front foot as measured from the under side | 9.9 (9.0–11.1 | 8.4 (7.9–9.2) |
| Skull measurements: | | |
| Basilar length of Hensel | 35.6 (33.3–38.7) | 32.2 (31.5–33.0) |
| Greatest length of nasals | 13.8 (12.5–15.3) | 12.4 (11.8–12.9) |
| Zygomatic breadth | 25.9 (24.4–27.6) | 23.2 (22.3–24.1) |
| Greatest mastoid breadth | 20.4 (19.8–21.3) | 18.7 (18.1–19.5) |
| Interorbital constriction | 6.6 (6.2–7.2) | 6.5 (6.4–6.7) |
| Alveolar length of upper molar series | 8.5 (8.2–8.9) | 8.1 (7.5–8.6) |
| Width of rostrum | 8.8 (8.3–9.4) | 7.9 (7.5–8.1) |
| Extension of premaxillae posterior to nasals | 3.7 (3.0–4.5) | 3.6 (2.8–4.5) |

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# A NEW SPECIES OF PLEUROTHALLIS FROM CENTRAL AMERICA.

BY OAKES AMES.

Eight years ago I described a new Costa Rican species of Pleurothallis of the section Sarcodanthae (Prorepentes). This species was of more than passing interest because it had no known close allies in the Central American flora. To find any species approaching it in vegetative and floral characters one had to look toward Cuba and *Pleurothallis nummularia* Reichb. f. (1865). The new Pleurothallis was named *P. peperomioides* in allusion to the tiny orbicular leaves which suggest some diminutive, creeping species of Peperomia (cf. Ames, Sched. Orch. 7 (1924) t. 4). Until 1927, *P. peperomioides* remained the only representative in Central America of its special alliance in the section Sarcodanthae (Prorepentes), although approached by several species recently described by Schlechter.

In 1927, Paul C. Standley discovered in Spanish Honduras another species of identical habit. Unfortunately Standley's material was incomplete through the absence of the labellum from the only flower found. The Honduran plant differed markedly from the Costa Rican and Cuban species in having the ovary and sepals smooth rather than hispidulose, but it was nevertheless incomplete and could not be properly described.

In 1930, I received from Guatemala excellent material that was vegetatively indistinguishable from Standley's Honduran specimens and that resembled them in having the ovary and sepals quite smooth. These specimens were collected by Margaret Ward Lewis near Puerto Barrios. There seems to be little doubt that the Guatemalan and Honduran plants are identical and constitute a new species.

**Pleurothallis Lewisae** Ames, sp. nov.

Rhizoma repens. Caules secundarii abbreviati, distichi, monophylli. Folium carnosum, ovale vel orbiculare, apice rotundatum et minute tridentatum. Pedunculus folio brevior, pauciflorus, solitarius vel geminatus. Sepala lateralia oblongo-lanceolata, acuta, trinervia, glabra. Sepalum dorsale simile, valde concavum. Petala oblonga, uninervia, apiculata, glandulosa. Labellum oblongum, valde acutum, carnosum, glandulosum, trinervium, margine prope medium labelli utrinque lobulato, lobulis triangularibus acutis. Columna superne dilatata et irregulariter fimbriata. Capsula glabra.

In habit similar to *P. nummularia* Reichb. f. and *P. peperomioides* Ames. Rhizome creeping and closely appressed to the bark of trees on which the plant is epiphytic. Secondary stems 2.5–6 mm. long, distichous, directed obliquely forward, concealed by scarious, nervose sheaths, monophyllous. Leaves 6–10 mm. long, 5–6.5 mm. wide, oval to orbicular with the surface minutely pustulose and glossy, minutely tridentate at the rounded apex, the middle tooth subulate and equaling the others. Peduncle simple or often geminate, shorter than or equaling the leaf, sheathed at base, usually 2–3-flowered, the flowers opening in succession. Pedicels subtended by ample hispidulose, infundibuliform sheaths. Ovary smooth. Lateral sepals smooth, 5 mm. long (including the mentum), about 1 mm. wide, free almost to the base, oblong-lanceolate, acute, 3-nerved, yellow. Dorsal sepal similar, 5 mm. long, strongly concave, cymbiform, 3-nerved. Petals purplish, about 4 mm. long, scarcely 1 mm. wide, oblong, 1-nerved, abruptly rounded at the apex where they are shortly apiculate, surface and margins densely and minutely glandulose. Labellum about 2.5 mm. long, purplish, densely and minutely glandulose, oblong, acute, fleshy, 3-nerved, with a triangular lobule on each side near the middle. Column about 2 mm. long, slender at the base, dilated upward, margin of the clinandrium irregularly fringed.

GUATEMALA, Department of Izabal, near Puerto Barrios. On mango tree about 40 miles from the coast. 175 feet altitude. *Margaret Ward Lewis 2*, August, 1930. (Type in Herb. Ames no. 36530).

HONDURAS, Department of Atlántida, Lancetilla Valley near Tela. Flowers dark brown-red. *Paul C. Standley 55202*, December 6, 1927–March 20, 1928.

The glabrous sepals and ovary, the lobulate labellum and the two-or more-flowered inflorescence serve to distinguish *P. Lewisae* from its congeners.

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# AN ADDITION TO THE FLORA OF HONDURAS.

BY OAKES AMES.

The genus Lepanthes is represented in Central America by approximately fifty species of which the greater part are natives of Costa Rica.

In 1923, while exploring the Lancetilla Valley, near Tela, in Spanish Honduras, I found an interesting representative of the genus for which I have been unable to find any published description. It was growing, partly exposed to the sun, on the slender branches of a tree which overhung the east bank of the Tela River.

The only published record of a species of Lepanthes from Honduras is in Paul C. Standley's Flora of the Lancetilla Valley (Field Museum of Natural History, Publication 283, January 15, 1931, p. 148). This species was not named, but it is identical with the one described below.

**Lepanthes hondurensis** Ames, sp. nov.

Herba caespitosa, mediocris. Caules pergraciles, late patentes, vaginis tubulatis arctis omnino obtecti. Folium singulum, erectum, ovatum vel lanceolato-ovatum. Inflorescentiae singulae vel plures, quam folium multo breviores. Sepala lateralia late ovata, acuta, parte inferiore connata. Sepalum dorsale simile. Petala transverse bilobata; lobi posteriores suborbiculares; lobi anteriores paulo angustiores. Labellum trilobatum, lobis lateralibus dolabriformibus, in margine exteriore carinato-peltatis; lobo intermedio minuto, fugaci.

Plant caespitose, variable in height and in the proportions of the vegetative organs, 6–13 cm. tall from the base of the secondary stems to the tip of the leaf. Roots fibrous, filiform. Stems slender, obliquely ascending, 3–9.1 cm. long, entirely enveloped by 6–10 slenderly infundibuliform sheaths which are closely appressed and minutely scabrous on the longitudinal nerves with the margin of the free portion hispid. Leaf terminal, solitary,

petioled; lamina 1.6–4.7 cm. long, up to 2.2. cm. wide, ovate-lanceolate or elliptic-ovate, abruptly acute with a minutely tridenticulate apex, the base either cuneate or rounded. Inflorescence axillary. Peduncles 1–9, much shorter than the leaf, filiform, rather densely and distichously few-flowered at the apex (rarely with twelve or more flowers), flowers opening in succession. Bracts concave, cymbiform, conspicuously glandular-hispid on the outer surface, much shorter than the pedicels. Flowers small, membranaceous. Lateral sepals obliquely ovate, greenish yellow, acute, sometimes abruptly so, the lower halves connate, up to 4 mm. long, the free portion up to 3 mm. wide near the base, 2–3 nerved. Dorsal sepal similar. Petals orange, bordered with mauve, transversely bilobed, very minutely ciliolate, about 4.3 mm. wide from tip to tip of the lobes; posterior lobe suborbicular to broadly oval; anterior lobe oval to subquadrate, as long as the posterior lobe, but slightly narrower, broadly rounded at the apex. Labellum mauve, trilobed, 3-nerved with the lateral nerves faintly clavate, adherent to the column, 1.3–1.8 mm. long; lateral lobes dolabriform, apically convergent, minutely ciliolate, each one with a raised carina; middle lobe minute, membranaceous, oblong, truncate, fugacious. Column mauve, about equal to the labellum or slightly shorter, somewhat dilated near the apex.

HONDURAS, Department of Atlántida, Lancetilla Valley near Tela. Epiphyte. *Ames II. 171*, March 11, 1923. Sepals pale yellow. Petals suggesting a tiny butterfly, orange bordered with violet or mauve. (Type in Herb. Ames No. 33709); On tree in wet forest. *Paul C. Standley 52779*, December 6, 1927–March 20, 1928. 20 to 600 meters altitude. Sepals greenish. Petals and lip orange red.

*Lepanthes hondurensis* is allied to *L. appendiculata* Ames, a Guatemalan species, but is larger in the vegetative parts with differences in the structure of the labellum. In vegetative structures it resembles closely *L. fimbriata* Ames from Costa Rica, but is different from that species in the form of the petals.

Apparently the flowering season is of long duration, as the flowers seem to open one at a time.

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# A NEW MOCKINGBIRD FROM COLOMBIA.

BY W. E. CLYDE TODD.

The Mockingbird of the Santa Marta region of Colombia was referred by the writer to *Mimus gilvus columbianus* Cabanis,[1] following Ridgway.[2] But there is absolutely nothing in the original diagnosis of *columbianus*[3] to tie it up with this small littoral form any more than with the bird of the interior of the country, which Ridgway has called *tolimensis*.[4] A series from the Magdalena Valley (Aguachica, Ocaña, and El Tambor), however, are the same as another from northern Venezuela, which undoubtedly represent the *Mimus melanopterus* of Lawrence,[5] the type of which has been examined in this connection. None of these are quite so large as the measurements quoted by Ridgway for the type of *tolimensis* would indicate. So that if *tolimensis* is recognized it would have to be (at present) on the basis of the type alone, and its range would have to be restricted to the upper Magdalena Valley, in the State of Tolima. When Ridgway described this form he had no specimens from Venezuela, and compared his bird with Santa Marta specimens, which he supposed were *columbianus*.

The circumstance that von Berlepsch[6] had identified specimens from Bucaramanga, Colombia, as *columbianus* led me to suspect that this name might be applicable to the form we had been calling *melanopterus*—a suspicion recently confirmed by Dr. C. E. Hellmayr, who writes me that he has examined the

[1] Annals Carnegie Museum, XIV, 1922, 398.
[2] Bulletin United States National Museum No. 50, IV, 1907, 236.
[3] Museum Heineanum, I, 1851, 82.
[4] Smithsonian Miscellaneous Collections, Quarterly Issue, XLVII, 1904, 113.
[5] Annals Lyceum Natural History of New York, V, 1852, 35, pl. 2.
[6] Journal für Ornithologie, 1884, 279, and 1892, 75.

types of *columbianus*, and that they are both from Venezuela (!) and agree with specimens from the north coast and the Orinoco Valley. Hence *columbianus* will supplant *melanopterus* as the proper name for the form of *Mimus gilvus* which ranges from the Orinoco Valley in Venezuela into the Magdalena and Cauca Valleys of Colombia, birds from these two respective regions being indistinguishable. This procedure leaves the bird of the northern littoral of Colombia without a name. It may then be called

**Mimus gilvus leucoterus**, sp. nov.

*Type*, No. 41,960, Collection Carnegie Museum, adult male; Santa Marta, Colombia, May 15, 1913; M. A. Carriker, Jr.

Similar to *Mimus gilvus columbianus* Cabanis of Venezuela and interior Colombia, but smaller, with relatively shorter tail (little if any longer than the wing), whiter under parts, and more extensively white rectrices.

Ten males of *columbianus* (in good plumage) measure: wing, 114–120 (average, 116.5); tail, 113–133 (123); bill, 19.5–21 (20.5); tarsus, 32–36 (34). Six males of the new form: wing, 108–115 (111.5); tail, 109–116 (113); bill, 20–21.5 (20.8); tarsus, 32–34 (33). The reduction in the relative length of the tail is a marked feature. In some cases it is even shorter than the wing. The whiter under parts, well shown on comparison of series, serve to distinguish it from *columbianus*, but by this very token it approaches the form of Curaçao, *rostratus*. The latter, however, is slightly more grayish, not so purely white below, while the streaks on the flanks are somewhat more pronounced, so that the race may stand for the present.

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# CRITICAL NOTES ON THE NEOTROPICAL THRUSHES.

BY W. E. CLYDE TODD.

Having lately completed a study of the Thrushes (Family Turdidæ) in the collection of the Carnegie Museum, the writer takes advantage of this opportunity to present his findings in the case of certain forms, together with some remarks on the genera involved. Our collection in this family contains 2411 specimens, representing 39 genera, 125 species, and 48 additional subspecies, or 173 forms in all. In the present paper, which is the sixteenth of the series to appear in these Proceedings, one new species and four new subspecies are named, and one subspecies already provided with a name is revived. The same rules as to measurements and names of colors which governed the other articles of the series apply here also.

## Remarks on the Genera.

To the lucid and altogether admirable essay of Dr. Leonhard Stejneger (Proceedings United States National Museum, V, 1883, 449–483) we must still go for the best exposition of the characters and arrangement of this family group. His views were adopted in the main by Ridgway in his great work, the sequence of the genera being somewhat altered. *Entomedestes*, which Dr. Stejneger would exclude from the Thrushes, is admitted by Ridgway. In its scutellate tarsi and general appearance it suggests *Ptilogonys*, and should probably be placed near that form, as originally suggested by Dr. Stejneger himself. Several of the Old World genera, too, commonly placed by authors in the Turdidæ, can not be left here without vitiating the definition of the family as such. Some of these aberrant genera, in which the young are spotted but the tarsi are scutellate to a degree, ought probably to be removed to the Muscicapidæ, and others to the Timeliidæ. This problem I am in no position to work out myself, and would merely call attention to it at this time.

Many authors (including both Stejneger and Ridgway) have seen fit to make a generic distinction between the Thrushes proper (*Turdus*) and the

Blackbirds or Ouzels (*Merula, Planesticus*). Of late, however, it has come to be felt that such a distinction is arbitrary and unnecessary, with so many connecting and indeterminate forms, whose allocation is more or less uncertain. This latter view I have come to share, after examining all the various species in the collection at hand. Consequently, it is immaterial whether the type of *Turdus* is *T. viscivorus* (by designation of Gray, 1840), or *T. merula* (by designation of Selby, 1825), as claimed by Dr. Harry C. Oberholser (*cf.* these Proceedings, XXXIV, 1921, 105), and denied by Mr. W. L. Sclater (Systema Avium Æthiopicarum, part 2, 1930, 437, note).

On the other hand, *Semimerula* Sclater impresses me as a perfectly good genus, and I feel that it should be retained for the Giant Thrushes of the Andean region (Temperate Zone) and their allies in the Subtropical Zone. It has been discounted by Ridgway (Bulletin United States National Museum, No. 50, IV, 1907, 90) mainly on account of the Central American "*Planesticus*" *nigrescens* not fitting into it, and more recently by Dr. Wetmore (Bulletin United States National Museum, No. 133, 1926, 358), for no additional reason. Ridgway was of course quite right in keeping *Turdus nigrescens* Cabanis in "*Planesticus*," and in refusing to recognize *Semimerula* on the sole basis of the larger spurious primary. But the Giant Thrushes have other and even better generic characters. They agree in their heavy feet, and distinctly rounded (instead of nearly even) tail, which is relatively much longer than in any of the species of *Turdus*, falling short of the wing by less than the length of the culmen. The relative length of the wings and tail varies considerably among the members of the genus *Turdus*, the migratory forms usually having the wings longer, but in no species of the group seen by me does the tail so closely approximate the wings as it does in the Giant Thrushes. The black Thrushes of the *Turdus serranus-atrosericeus* group also fall in *Semimerula*, using these characters as a criterion, and it is worth while noting that the females of these forms closely resemble the Giant Thrushes, suggesting a relationship. But *Turdus leucops* Taczanowski and *T. xanthoscelus* Jardine, in which the males are also black, fall in an entirely different group, *Platycichla*, as already indicated by Ridgway. If *Semimerula* be merged with *Turdus*, so also should *Platycichla*.

### Hylocichla ustulata ustulata in Colombia—a Correction.

In our paper on the "Birds of the Santa Marta Region of Colombia" (Annals Carnegie Museum, XIV, 1922, 404) two specimens in the collection, bearing dates of December 30, 1898, and March 24, 1899, respectively, were mistakenly referred to *swainsoni*—in spite of the fact that both had been plainly marked *ustulata* some years ago. They agree well, in fact, with our Oregon series of that form, allowing for the fact that the latter are all in spring plumage.

### A Review of Turdus phæopygus Cabanis.

*Turdus phæopygus* has an extensive range in northern South America, from French Guiana and the lower Amazon on the east to Colombia on the west. It is a bird of the Tropical Zone, not going above 5,000 feet at the

most. In the Pacific coast region of Colombia it is replaced by an allied but perfectly distinct form, *T. daguæ*, which in color characters is to some extent intermediate between *T. phæopygus* and its Central American representative, *T. assimilis*. I fully agree with Messrs. Miller and Griscom (American Museum Novitates No. 184, 1925, 16) in allowing *T. daguæ* specific rank, although I can not follow them in what they say about *T. phæopygus phæopygoides* being so very close.

In his paper published some years ago Dr. Hellmayr (Journal für Ornithologie, L, 1902, 63) recognized no less than four forms of the species, *phæopygus* proper, *spodiolæmus*, *minusculus*, and *phæopygoides*. This arrangement has been generally accepted, save that the present writer has not seen fit to recognize *minusculus*. With a much larger series of specimens (131) now available for study, eliminating the factor of seasonal variation, it becomes clear that some additional races will have to be allowed. Sexual dimorphism in color plays a certain part in characterizing some of these geographical variants.

**Turdus phæopygus phæopygoides** Seebohm.

*Turdus phæopygoides* Seebohm, Cat. Birds Brit. Mus., V, 1881, 404, in text (Tobago).

*Subspecific characters.*—Similar to *T. phæopygus phæopygus*, but more olivaceous (deep medal bronze), less brownish, above; the dark stripes on the throat, too, seem blacker and heavier. The size is about the same.

*Range.*—Islands of Tobago and Trinidad, and the adjoining north coast of Venezuela, west to Cumaná.

*Remarks.*—This form was based on an example from Tobago, but Dr. Hellmayr (Novitates Zoologicæ, XIII, 1906, 4) says that Trinidad birds are the same, and he refers Cumaná birds also to this race—a reference confirmed by our series. The sexes are alike, although both are subject to some variation in tone of color. We have seven specimens from Trinidad (Poole and Heights of Aripo) and five from the Cumanacoa region of northeastern Venezuela (San Rafael, Mirasol, and El Yaque), the latter series not quite typical.

**Turdus phæopygus phæopygus** Cabanis.

*Turdus phæopygus* Cabanis, in Schomburgk, Reisen in Britisch-Guiana, III, 1848, 666 (British Guiana).

*Merula phæopyga minuscula* Bangs, Proc. Biol. Soc. Washington, XII, 1898, 181 (Pueblo Viejo, Sierra Nevada de Santa Marta, Colombia).

*Description.*—Adult (sexes alike): above deep brown (nearest Dresden brown, but much darker), duller on the wings externally, and passing into dull brownish olive on the rump and into dark mouse gray on the upper tail-coverts and tail; sides of the head a little darker than the back; throat streaked with white and brownish black, and followed by a pure white collar, separating this streaked area from the grayish or brownish wash which covers the breast, sides, and flanks, leaving the under parts white medially, including the under tail-coverts; under wing-coverts grayish, with

lighter tipping; "iris brown; feet dark horn-color; bill blackish, paler at base below" (Carriker).

*Measurements.*—Six males: wing, 107.5; tail, 83.5; bill, 15.8; tarsus, 28.

*Range.*—British (and Dutch ?) Guiana through Venezuela (except the Cumaná region) and eastern Colombia to the Santa Marta region, and the middle Magdalena Valley.

*Remarks.*—No skins from British Guiana, the type-locality, have actually been examined, but our Caura River series are probably typical, and with them the specimens from northern Venezuela agree well enough. There is a slight individual variation in the exact shade of color of the upper parts, some being more olivaceous, others more brownish, but no sexual difference in this respect. The buffy brownish wash on the breast also varies slightly.

A few years ago (Annals Carnegie Museum, XIV, 1922, 399) I gave it as my opinion that the alleged race *minusculus* from the Santa Marta region of Colombia was unworthy of recognition on the sole basis of its slightly smaller size. Mr. Bangs still thinks, however (Bulletin Museum Comparative Zoology, LXX, 1930, 328), that *minusculus* can be maintained on size alone.

Five males from the Santa Marta region measure as follows: wing, 103.6; tail, 82.2; bill, 15.9; tarsus, 27.3. The slight differences shown by the above measurements do not appear to me to be sufficient to validate the race as such.

The above remarks are based on the examination of a series of fifty-seven specimens from the Caura River region and the northern part of Venezuela, and the Santa Marta region and the interior of Colombia. Specimens from the latter section (El Cauca, Palmar, La Colorada) appear to be in nowise different.

**Turdus phæopygus cayennensis,** subsp. nov.

*Type,* No. 64,700, Collection Carnegie Museum, adult male; Pied Saut, French Guiana, November 13, 1917; Samuel M. Klages.

*Subspecific characters.*—Similar in general to *T. phæopygus phæopygus,* but color of upper parts deeper in tone, and sexes obviously different in color. Six males measure: wing, 104; tail, 81.5.

*Range.*—French (and Dutch ?) Guiana, south to the Amazon River.

*Remarks.*—When the late Count von Berlepsch wrote his review of the birds of Cayenne (Novitates Zoologicæ, XV, 1908, 103–164, 261–324) he had but one young specimen of *T. phæopygus* from that part. With a series of twenty-two fine specimens now available it is evident that the French Guiana bird is a well-marked subspecies, differing as much from *phæopygoides* as the latter does from true *phæopygus,* and carrying the characters of the former a step further. The pileum, sides of the head, back, and wings externally are a shade darker in tone, easily seen when the two respective series lie side by side, even although individual specimens may be close. Moreover, while in true *phæopygus* and *phæopygoides* the sexes are alike, in the new form they are obviously different. Females are recognizable at a glance by the more brownish color of their upper parts as compared with males, and by the brownish wash on the under parts also. At

first sight it looks as if this wash were the result of a stain from some outside source, but I am convinced that most of it is natural. It is interesting to recall that the Central American representative of the present species, *T. assimilis*, shows a parallel variation in its several races affecting the color of the sexes (*cf.* Miller and Griscom, *l. c.*).

The range of this form extends to the Amazon, our specimens from Obidos (5) and Manacapurú (2), on the north bank of that stream, belonging here, although not fully typical.

**Turdus phæopygus,** subsp.

The male of a pair of birds from Benevides (near Pará), Brazil, is scarcely distinguishable from that of *cayennensis*, but the female is very much brighter, more rufescent than the females of that form, being between Dresden brown and Brussels brown—much brighter than in any other example of this species in our whole series. If these characters are constant, then the Pará bird is as good a race as any other here characterized, but I hesitate to name it on the basis of a single pair of birds, and prefer to await a larger series. Dr. Hellmayr (Novitates Zoologicæ, XIII, 1906, 353) says that four specimens from the Pará region examined by him "agree perfectly in colour and size with specimens from British Guiana."

**Turdus phæopygus coloratus,** subsp. nov.

*Type*, No. 74,581, Collection Carnegie Museum, adult male; Colonia do Mojuy, Santarem, Brazil, October 29, 1919; Samuel M. Klages.

*Subspecific characters.*—Similar to *T. phæopygus phæopygus*, but color of upper parts darker and more rufescent brown.

*Range.*—Known only from the Rio Tapajóz (east bank), State of Pará, Brazil.

*Remarks.*—Our series of nine specimens from Santarem and the Tapajóz River are certainly different from those from the north bank of the Amazon. The sexes are alike, and both are decidedly more rufescent than in the form in question, even the females showing a brighter tone in this respect. The series are in fact nearer in general appearance to true *phæopygus*, but are so obviously darker that they would not be confused. Altogether they constitute an excellent subspecies.

**Turdus phæopygus berlepschi,** subsp. nov.

*Turdus saturatus* (not *Peliocichla saturata* Cabanis, 1882) von Berlepsch, Proc. Zool. Soc. London, 1896, 326, in text (E. Ecuador and Bogotá, Colombia).

*Type*, No. 93,913, Collection Carnegie Museum, adult male; Arimã, Rio Purús, Brazil, November 4, 1922; Samuel M. Klages.

*Subspecific characters.*—Similar to *T. phæopygus coloratus* of the Rio Tapajóz region of Brazil, but upper parts, etc., darker, more brownish, less rufescent; streaks on the throat blacker; and under parts with more grayish shading.

*Range.*—Western Brazil (State of Amazonas), from the Rio Negro to the Rio Madeira, west to southeastern Colombia, eastern Ecuador, and northeastern Peru.

*Remarks.*—This is the darkest form of all. The upper parts are between Prout's brown and sepia, with the pileum rather deeper, and the sides of the head also dark-colored, almost mummy brown in fresh specimens. The throat-streaks are quite black, and the breast and sides are strongly shaded with grayish.

The name *saturatus* applied to this race by the late Count von Berlepsch was based on specimens from eastern Ecuador, with which "Bogotá" skins were said to be identical. It turns out, however, that von Berlepsch's name is preoccupied by *Peliocichla saturata* Cabanis, for an African Thrush now referred to *Turdus*, and since no type or type-locality were ever indicated it seems desirable in renaming the form to supply both. It probably ranges east to the Rio Madeira and north to southeastern Colombia, but where it meets *spodiolæmus* I am unable to say. We have a series of 21 specimens from the Rio Purús (Hyutanahan, Nova Olinda, Arimã) and the upper Amazon (São Paulo de Olivença and Tonantins) in Brazil.

**Turdus phæopygus spodiolæmus** von Berlepsch and Stolzmann.

*Turdus phæopygus spodiolæmus* von Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1896, 326 (La Gloria, central Peru).

Not having been able to examine a specimen of this form, I am unable to discuss it to advantage. It was described as larger than *phæopygus* (wing, 118.5; tail, 98.5), with the white edgings to the feathers of the throat much reduced, and the dark streaks correspondingly more prominent. Dr. Hellmayr, who has examined the type-specimen, confirms this diagnosis (Journal für Ornithologie, L, 1902, 64). The form is still imperfectly known, but appears to possess good characters.

Note on Turdus leucomelas albiventer and ephippialis.

In 1922 (Annals Carnegie Museum, XIV, 1922, 396) I accepted, provisionally, a northern race of *Turdus albiventer* under the name *ephippialis* Sclater, making *fusa* Bangs a synonym. At that time I had no topotypical specimens of *albiventer* for comparison. But with additional specimens from the type-locality and adjacent parts now available, I can no longer maintain *ephippialis* as a distinct race. All the alleged characters break down in the light of this series, and prove to be due to season or age. Dr. Hellmayr (Field Museum Zoological Series, XII, 1929, 249) thinks that Brazilian specimens have the breast and sides more strongly shaded with brownish than northern ones, but the fact of the matter is that the specimens showing these characters most conspicuously are northern birds! I follow him, however, in separating birds from the localities represented in our series, collectively, from *leucomelas* of Paraguay, which, as he and others have shown, is conspecific. These remarks are based on the study of 106 specimens in all, from Colombia, Venezuela, French Guiana, and Brazil.

THE RACES OF TURDUS NUDIGENIS LAFRESNAYE.

With a satisfactory series (79 specimens) of this species, representing various parts of its general range, and sufficient to eliminate the factor of seasonal variation, it appears that its characters are not so constant as has been supposed. Three geographical variants can easily be distinguished.

**Turdus nudigenis nudigenis** Lafresnaye.

*Turdus nudigenis* LAFRESNAYE, Rev. Zool., 1848, 4 (Caracas, Venezuela).

*Remarks.*—Specimens taken from October to December are all in nice fresh plumage. The general color of the upper parts and wings externally is olivaceous (nearest the brownish olive of Ridgway's plate, but a little paler). Below, the breast, sides, and flanks are washed with dull buffy brown, leaving the abdomen medially and the crissum white. As the season advances the upper parts tend to become more grayish in tone, while the wash on the under parts becomes more buffy. July and August examples from Trinidad are so badly worn and faded that the distinctive colors are practically unrecognizable. Young in juvenal dress are also found at this season; they are conspicuously spotted above and below with buffy and black. One abnormally colored individual has the throat brownish like the breast, streaked with dusky.

This, the typical form of the Bare-eyed Thrush, appears to be confined to the northern coast strip of Venezuela, from the State of Carabobo (at least) eastward to and including Trinidad. Caracas is the type-locality, and our series from that general region has been used for comparison in drawing up diagnoses for the other races. Our full series totals 39 specimens.

**Turdus nudigenis gymnophthalmus** Cabanis.

*Turdus gymnophthalmus* CABANIS, in Schomburgk, Reisen in Britisch-Guiana, III, 1848, 665 (British Guiana).

*Remarks.*—Some years ago Messrs. Bangs and Penard (Bulletin Museum Comparative Zoology, LXIII, 1919, 31) showed that *Turdus gymnophthalmus* Cabanis, which had long been the accepted name for the Bare-eyed Thrush, was almost certainly antedated by the *Turdus nudigenis* of Lafresnaye, whose type had come into the possession of the Museum of Comparative Zoology. But Cabanis' name, based on the bird of British Guiana, must be retained in a subspecific sense for the race of this species which inhabits the Orinoco Valley of Venezuela, west to its head at the base of the Eastern Andes of Colombia, and east to French Guiana. I have seen no birds from British Guiana itself, but since those from the Caura region of Venezuela are virtually identical with the French Guiana series it is fair to presume that those from the intermediate region would also be the same. This race can readily be told by the obviously lighter, more buffy olive tone of the upper parts and wings externally, shown on comparison when specimens in freshly assumed plumage are laid out side by side. The under parts, too, are more decidedly and more uniformly brownish (pale buffy brown), even the streaks on the throat sharing this tendency.

The characters of this race are of course not so pronounced in worn plumage, but they hold in our series of 33 specimens as compared with 39 specimens of true *nudigenis*. Four examples from Palmar, at the eastern base of the Eastern Andes in Colombia, are the basis for extending the range of this race to that part.

**Turdus nudigenis extimus,** sp. nov.

*Type,* No. 78,135, Collection Carnegie Museum, adult male; Santarem, Amazon River, Brazil, September 14, 1920; Samuel M. Klages.

*Subspecific characters.*—Similar to *Turdus nudigenis gymnophthalmus* of the Orinoco Valley and Guiana, but general coloration decidedly darker and more brownish.

*Range.*—Lower Amazon Valley.

*Remarks.*—This southern form of the species carries the characters of *gymnophthalmus* a step further. Individual specimens of both forms may resemble the other, but in a series the differences are unmistakable. The upper parts, wings externally, etc., are dark buffy olive, and the brown of the under surface is also darker (Saccardo's umber to tawny olive), giving a generally darker and browner effect. The abdominal white area is also reduced.

Miss Snethlage lists several specimens of this Thrush from the lower Amazon, but until the present series were collected and sent in by Mr. Klages no material from this region was available for comparison. In the coloration of the under parts it is almost the same as *T. obsoletus* of Central America, but above it is not nearly so brown as that form.

A New Thrush from Bolivia.

**Turdus haplochrous,** sp. nov.

*Type,* No. 80,224, Collection Carnegie Museum, adult female; Palmarito, Rio San Julian, Chiquitos, Bolivia, May 25, 1918; José Steinbach.

*Description.*—Upper parts dull medal bronze or dark buffy olive, almost uniform, the wings externally darker, more brownish olive; under parts pale brown with a buffy tinge (dull isabella color), the throat still paler, with obscure darker stripes; under wing-coverts rusty buff; tail dusky blackish; "iris brown; bill brownish black; feet brownish plumbeous" (Steinbach). Wing, 114; tail, 96; bill, 21; tarsus, 31.

*Remarks.*—Of this new species only a single specimen is available, but it is so different from any other known form that it seems to merit forma description. Dr. Hellmayr, who has been good enough to examine the specimen in question, reports that it belongs to the *Turdus nudigenis-maculirostris* group, agreeing with the latter in the restriction of the bare zone around the eye, while the proportions of the wing and tail are about the same. "The second primary [from the outside] is somewhat longer, equal to the sixth, instead of being equal to the seventh or between the sixth and seventh. The first (spurious) primary is perhaps slightly broader. The coloration throughout is much browner. The characteristic feature is the absence of the white abdominal area and of the buffy white inner margin to the remiges."

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# ODONATA FROM SANTA CLARA, CUBA.

BY RICHARD DOW.

During August and September, 1930, I was fortunate in being able to spend several weeks at the Harvard Biological Laboratory in Cuba. Though primarily interested in Hymenoptera, I made a small collection of about 225 dragonflies, which I have recently determined and deposited in the Museum of Comparative Zoölogy. Before discussing my results, I wish to express my gratitude to Dr. Philip P. Calvert who aided me in determining several specimens, and to Mr. Nathan Banks who assisted me with much helpful advice. Finally I wish to thank Dr. Thomas Barbour through whom I secured my scholarship from the Atkins Foundation.

Most of my material was collected at Central Soledad, the sugar estate on which the Harvard Biological Laboratory and Botanical Garden are located. I also collected a few specimens in the Trinidad Mountains, and along the narrow entrance to Cienfuegos Bay. All of these localities are in the Province of Santa Clara. Though I have a record of the different habitats in Soledad where I collected each species, many of the dragonflies came from several parts of the estate, so I have omitted these data from my list. When a species was not taken outside of Soledad, I have omitted the locality entirely.

In Part 3 of the *Contribución á la Entomología Cubana*, published in 1888 to 1890 by Juan Gundlach, the famous Cuban naturalist, there are 70 species of Odonata. In Dr. Calvert's critical study of that work (1919), the original 70 are reduced to 69 including one subspecies. Though Gundlach gives localities for most of his species, there are no records for the region near Cienfuegos. With this in mind, I drew up the following list of 35 species, only two of which did not appear in Gundlach's contribution.

SUBORDER ZYGOPTERA.

FAMILY COENAGRIONIDAE.

SUBFAMILY LESTINAE.

**Lestes tenuatus** Ramb.

One male, Sept. 14.

SUBFAMILY COENAGRIONINAE.

**Enallagma coecum cardenium** (Hagen).

One female, San José, Trinidad Mts., Aug. 30. Eighteen males and eleven females from Soledad, including two pairs taken in copula, Aug. 17, and Sept. 11. The colors are greatly obscured, but measurements of the abdomen, hind wings, and postocular spots agree on the whole with Dr. Calvert's definition of *cardenium*.

**Telebasis dominicana** (Selys).

One female, San José, Trinidad Mts., Aug. 30. Five males and three females from Soledad, Aug. 14 to Sept. 11.

**Leptobasis vacillans** var. **atrodorsum** Calv.

One male, Aug 14, in which the postocular spots and thoracic stripes are quite distinct.

**Ischnura ramburii** (Selys).

One male and two heterochromatic females, Aug. 15. The male is intermediate between typical *ramburii* and var. *credula* (Hagan). The dorsum of the ninth segment is blue except for two black areas, a small basal triangle and a large apical one, whose apices meet in the median dorsal line.

**Anomalagrion hastatum** (Say).

One male, Aug. 15.

**Ceratura capreola** (Hagen).

One male, Aug. 15.

**Protoneura capillaris** (Ramb.).

One male, Sept. 15.

SUBORDER ANISOPTERA.

FAMILY AESHNIDAE.

SUBFAMILY GOMPHINAE.

**Gomphoides (Aphylla) producta** (Selys).

I did not notice this species until the end of my stay in Soledad. A single male was taken in the Botanical Garden, Sept. 13.

Subfamily Aeshninae.

**Anax junius** (Drury).

One female, Matagua, Trinidad Mts., Aug. 28.

**Aeshna (Coryphaeschna) virens** (Ramb.).

One male, Sept. 14.

**Gynacantha ereagris** Gundlach.

One male and one female, Aug. 14.

**Gynacantha nervosa** Ramb.

Two males, Aug. 15, and Sept. 7.

**Gynacantha trifida** Ramb.

One male, Aug. 15, and two females, Aug. 19 and 24.

Family Libellulidae.

Subfamily Libellulinae.

**Tholymis citrina** Hagen.

One male, Sept. 14.

**Micrathyria aequalis** (Hagen).

Eleven males, Aug. 15 and 21, Sept. 11 and 13. Of this series, only three specimens have two cells in the internal triangle of both fore wings. Three other specimens have the triangle free on one side, and the remaining five have both triangles free. Since Ris places considerable emphasis on this character in his key to Micrathyria (Cat. Coll. Zool. Selys **12**: 428. 1911), I compared the genitalia of my specimens with those of the types and found them to be identical.

**Micrathyria didyma didyma** (Selys).

Three males and two females, Aug. 15 to Sept. 15.

**Micrathyria dissocians** Calv. and **hagenii** Kirby.

One male and one female from the Botanical Garden, Aug. 15; two females, Aug. 20 and Sept. 14. Dr. Calvert examined these specimens and wrote to me as follows: "The Micrathyria male is *dissocians*, the females may be either *dissocians* or *hagenii*. The male and one female 20. VIII have no pale markings on abdominal segments 5 and 6, but these are present on the other two females. All three females have the abdomen distinctly wider on 7 than elsewhere; the narrowing of 3— base of 6 is as marked in the female from the Bot. Garden as in the male; this female is younger than the other two females. . . The females are *dissocians* by the 2 rows of cells in the distal part of the anal field between $A_3$ and the wing margin, *hagenii* by having only 6 antenodals and no metepimeral brown stripe

branching from that on the 2nd lateral suture (however, there is a trace of this latter in the Bot. Garden female). The male lacks this stripe and has only 6 antenodals, hind wing."

**Orthemis ferruginea** (Fabr.).

Five males and eight females, Aug. 14 to Sept. 14.

**Cannaphila insularis funerea** (Carp.).

Four males and three females, Aug. 14 to Sept. 14, including a pair in copula, Aug. 17.

**Erythrodiplax connata justiniana** (Selys).

Sixteen males and ten females, Aug. 14 to Sept. 15.

**Erythrodiplax ochracea ochracea** (Burm.).

Six males and five females, Aug. 14 to Sept. 15.

**Erythrodiplax umbrata** (Linn.).

Twelve males and thirteen heterochromatic females, Aug. 14 to Sept. 15.

**Dythemis rufinervis** (Burm.).

Nine males and three females, Aug. 14 to Sept. 14. The venation of these females is entirely black. Other specimens in M. C. Z. vary from the red condition characteristic of the males to pure black.

**Scapanea frontalis** (Burm.).

One male, San José, Trinidad Mts., Aug. 29. One male, Soledad, Aug. 18.

**Macrothemis celeno** (Selys).

One male, San José, Trinidad Mts., Aug. 27. One isochromatic female, Castillo de Jagua, Sept. 5. Three males, three isochromatic females, and four heterochromatic females, Soledad, Aug. 14 to Sept. 6, including a male in copula with an isochromatic female, Aug. 23.

**Miathyria marcella** (Selys).

Three males, Aug. 24, and one female, Aug. 16.

**Tauriphila australis** (Hagen).

Three males, Aug. 21 to Sept. 8.

**Tauriphila** sp.

One male from Limones, Central Soledad, Aug. 24. This specimen was sent to Dr. Calvert who writes as follows: "The Tauriphila has the following characters of *T. xiphea* Ris (Cat. Selys p. 1004): Unterlippe hellbraun;

in der Vorderansicht der Umriss der beiden einander anliegenden Hamuli *proximal von der Konvergenz in die Spitzen ziemlich stark im Kreisbogen seitlich ausladend.* Im Hinterflügel. . . *Basisfleck . . . kaum über das Ende der Membranula* . . . Membranula schwärzlich. Has following characters of *T. argo* Hag. (Cat. Selys p. 1005): Gesicht und Stirn *ziemlich licht rötlichbraun; Stirn oben und Scheitelblase blaumetallisch, doch die rötliche Grundfarbe durchscheinend. Thorax braunrot. Abdomen . . . rot.* Flügel hyalin . . . *hell geaderter Basisfleck . . . distale Rand des Flecks in Adersäume aufgelöst.*

"The one male in the collection at the Academy of Natural Sciences is one of the males from Puerto Barrios, Guatemala, cited in the B. C. A. and it has features as underlined in the above two references [in italics]. We have no specimens of *T. xiphea.* In the absence of comparative figures of the hamule of *both* species, I am not clear as to what the differences given by Ris in this feature really are, and as things stand am inclined to think that these two names may really refer to a single species."

**Tramea insularis** Hagen = ? *T. binotata* (Ramb.).

Five males, Castillo de Jagua, Sept. 5. One male, Soledad, Sept. 6. I am inclined to believe that the synonymy proposed by Ris is correct. Though the hamules project below the genital lobes in all of the present series, there is enough variation in the position of these hamules to suggest that the statement of Ris (Cat. Coll. Zool. Selys **16** (1): 992. 1913) "Hamulus von gleicher Höhe wie der Lobus" should not be applied too strictly.

**Perithemis domitia** (Drury).

Three males and one female, Aug. 14 to Sept. 13.

**Brachymesia herbida** (Gundlach).

Six males, Aug. 17 to Sept. 13. The wings of these specimens are strongly suffused with amber, which is darkest along the anterior half of the wings beyond the basal cells.

This species is otherwise known as *Cannacria batesii* Kirby. See Calvert (1919: 365–366) for a discussion of the above name.

**Erythemis plebeja** (Burm.) = E. verbenata (Hagen).

Four males (one teneral male, Sept. 13) and two females, Aug. 21 to Sept. 13.

**Erythemis simplicicollis simplicicollis** (Say).

Two males, Sept. 12 and 13.

**Lepthemis vesiculosa** (Fabr.).

Two males, Castillo de Jagua, Cienfuegos, Sept. 5. One male, Punta Pasa Caballo, Cienfuegos, Sept. 4. Two males and two females, Soledad, Aug. 14 to Sept. 14.

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# NOTES CONCERNING THE FIRST PAPERS DEALING WITH THE APHID FAUNA OF AMERICA.

BY F. C. HOTTES.

In 1910 Wilson published a paper calling attention to thirty-six aphid species, described as new by C. S. Rafinesque in the early part of the 19th century, which had not until then been recognized (other than by name) in the literature pertaining to the family Aphididae in America. Two things may have attributed to the neglect of these early papers, the meagreness of some of the descriptions and the belief that certain of the names were used as trinomials. An examination of the original papers shows conclusively that all names were used as binomials and are in full accord with the International Rules of Zoological Nomenclature. An examination of the text shows that a majority of the species may be recognized from their descriptions, a fact which makes it necessary to replace certain specific names long since established in literature with such sesquipedalians as *Neothomasia populus-grandidentata* (Raf.), or to take steps to place names in conflict with those proposed by Rafinesque on the "List of Nomina Conservanda."

It is the purpose of this paper again to call attention to the species described by Rafinesque[1] and to cite a little known paper published by S. S. Haldeman in 1844,[2] and also to place such species and genera described by these men in synonymy where the descriptions are adequate for their recognition, a synonymy which does not always follow that suggested by Wilson for reasons which are explained in the text.

[1]Rafinesque C. S., American Monthly Magazine and Critical Review, Vol. I, pp. 360–361, 1817; Vol. III, pp. 15–18, 1818.

[2]Haldeman S. S., Proceedings of the Boston Society of Natural History, Vol. I, pp. 168–169, 1844.

For the convenience of those who may not have access to the original descriptions, the descriptions of the species are quoted and precede the comments concerning them.

1. "*Aphis Diervilla-lutea.* Body nearly rounded, annulated, whitish rufous, length 1 line; antens very short bent, one third the length of the body, appendages long truncated two thirds the length of the body."

This species has not been recognized.

2. "*Aphis Aralia-hispida.* Body pale green or rufous, obovate 1½ line; head truncated; antens longer than the body and straight; appendages ½ line."

Because of the brevity of the description and of Rafinesque's failure to mention the host plant, this species will probably never be recognized.

3. "*Aphis Aquilegia-canadensis.* Body pale rufous; acute posteriorly, without appendages, 1 line; antens of same length."

The statement that the species is without cornicles excludes all species at the present time known to occur in the United States on the host given. It is very probable that the cornicles were small and therefore overlooked, or that Rafinesque was dealing with immature specimens in which case the cornicles are often minute. This hypothesis granted, *Aphis aquilegia-canadensis* is probably the species now known as *Myzus essigi* Gillette and Palmer, the only species now known on the host named whose color (although never rufous) at times approaches pink. *Myzus aquilegia-canadensis* (Raf.) has not been recognized in synonymy.

4. "*Aphis Hieracium-venosum.* Body ferruginous red, oboval about 1 line long; antens ⅔ of that length, appendages very short."

This species was questionably placed by Wilson as a synonym of species No. 27, *Aphis annulipes* Raf. The phylogenetic position of the host species indicates that an aphid species belonging to the group Macrosiphea would be the most likely to inhabit it. One is tempted to place this species synonymous with *M. rudbeckiae* (Fitch) as Wilson has questionably done, but upon checking the species that inhabit the host given by Rafinesque, one finds that *M. rudbeckiae* (Fitch) is not listed, a fact that challenges one to look further for a more suitable species to associate with the species described by Rafinesque. *Macrosiphum hieracii* (Kaltenbach) is known to inhabit the host named by Rafinesque (host indicated by name given to species) and has been reported by Patch as a common aphid on Hieracium species ("Hemiptera of Connecticut"). This species may therefore be expected to occur in New York, although it has not been reported from that State to date. Theobald (1926) describes the apterous female of *Myzus hieracii* (Kalt.) as follows: "Shiny; head blackish brown; thorax and abdomen dark brown, except for green bands on thorax and apex of abdomen."

He further states that many apterae assume a dull reddish appearance.

Kaltenbach's species is a homonym of *Aphis hieracii* Schrank. Since the species described by Schrank and Kaltenbach are most likely the same, *Aphis hieracium-venosum* Raf. is a synonym of *Myzus hieracii* (Schrank), because Schrank's species has priority over the species described by Rafinesque.

5. "*Aphis Melampyrum-latifolium.* Body oboval, green with a pale

stripe along the back, 1 line long; eyes black, antens half a line; appendages very short."

This species has not been recognized.

6. "*Aphis Pteris-aquilnoides.* (P. aquilina Amer. Auct.) Body pale green, oboval, one line long; eyes brown, antens ½ a line long; appendages very short."

This species was considered by Wilson to be synonymous with and to have priority over *Mastopoda pteridis* Oestlund. The writer does not consider Wilson's synonymy correct. The body of this species in the original description is stated to be pale green and oboval. This species was probably described from immature specimens to judge from statement in regard to the cornicles; thus one is justified in ignoring them in regard to length. The color of immature specimens of *M. pteridis* Oestlund is stated to be pale yellow, and Patch (1910) states that bright orange spots (which would hardly be overlooked) are found at the base of the cornicles. The writer considers *Macrosiphum ptericolens* Patch a synonym of *A. pteris-aquilnoides.*

7. "*Aphis Campanula-riparia.* (C. rotundifolia Amer. Auct.) Body oboval, brick red, two lines; feet and antens reddish brown, antens shorter than the body; appendages very short."

This species was unquestionably described from immature specimens. Wilson considered it synonymous with *Aphis hieracium-venosum* Raf.

8. "*Aphis Chenophyllum-canadense.* Body oboval, acute, pale green, with two paler dorsal stripes, length 1½ line, head truncated, antens shorter than the body; appendages very short."

This species has not been placed in synonymy.

9. "*Aphis erigeron-philadelphicum.* Body green, oblong oboval, length two lines; antens bent, shorter than the body; appendages very short."

This species unquestionably described from immature specimens has not previously been recognized in synonymy. Because of its green color and the name of the host, which is indicated by the name given to the species, *Aphis erigeron-philadelphicum* is here considered to be the same as *Macrosiphum erigeronensis* (Thomas), over which it has priority.

10. "*Aphis verticolor.* Body oblong, oboval, two lines long; head truncated brown, thorax fulvous, abdomen ferruginous, feet brown, but white near the body, antens nearly as long as the body and brown; appendages very short. On several species of the order Glossanthia or Cichoracevus, and even on the *Hieracium venosum* along with the fourth species."

This species is probably synonymous with *Aphis hieracium-venosum* described by Rafinesque = *A. hieracii* Schrank. Wilson considered it thus.

11. "*Aphis furcipes.* Body oblong oboval, length one line, green, eyes black, antens longer than the body, feet brown, as well as the tops of the appendages, which are ¼ the length of the body.—On the *Primula veris* and *Bellis perennis* in gardens."

This species is here considered a synonym of *Myzus persicae* (Sulzer).

12. "*Aphis fusiclava.* Body oboval, depressed, dark fulvous, without appendages, length one line; antens shorter than the body, bent, tips clavated and brown.—On many garden plants."

This species is not an aphid because of the "clavated tips" of the antennae.

13. "*Aphis rosa-suaveolens.* Body oboval, oblong, green, brown or blackish, with two pale stripes on back; antens nearly as long as the body and brownish, appendages very short, legs black at the base and tip, white in the middle; wings, with a brown spot in the males. The young ones are green, the old ones are blackish."

Wilson lists the following species as synonyms of *Aphis-suaveolens* Raf.; *Aphis aquililegiae flava* Kettle (of no standing because described as a trinomial), *Hyalopterus aquilegiae* Koch, *Hyalopterus aquilegiae-flava* Hayhurst, and *Aphis trirroda* Walker. The synonymy proposed by Wilson is not accepted here. The remarks of Rafinesque in regard to color indicate that two other species were more likely involved than those mentioned by Wilson, namely *Macrosiphum gei* (Koch) and *Macrosiphum rosae* (L.), both species being known to have green and pink or brownish color forms. Specimens of *M. rosae* are often rather dark, perhaps blackish in the sense that Rafinesque used the term. *Aphis suaveolens* Raf. is considered here a synonym of *M. rosae* (L.).

14. "*Aphis diplepha.* Body oboval, pale green, with two rows of bristles on the sides of the back, eyes black, antens rufous as long as the body, legs rufous, appendages longer than the vent, which is acute. This species is found on many garden roses, the specific name means double ciliated."

This species was considered by Wilson to be the same as *M. rosae* (L.).

15. "*Aphis rhodryas.* Body oboval oblong, pale green, antens two-thirds of the length of the body, brown as well as the legs, appendages short.—On many wild roses which the specific name indicates."

The description of this species was evidently based upon immature specimens; it is probably a synonym of *M. rosae* (L.).

16. "*Aphis viburnum-opulus.* Body oboval, slate color, antens black, white at the base, very short, only one-fourth of the body's length, appendages black and very short, vent black, legs black, white at the base. The young ones are a greenish gray. This species feeds on the leaves instead of the stems; as usual with most of the species, it deforms the leaves and rolls them over its nest."

This species was considered by Wilson as a synonym of *Aphis viburni* Scopoli; it would appear more logical to consider it a synonym of *Aphis rumicis* L. In any event *Aphis viburnicola* Gillette should be removed from the synonymy of *Aphis viburni* Scopoli.

17. "*Aphis viburnum-acerifolium.* Body oboval, olivaceous brown, head black truncated, antens two-thirds of body's length brown, black at the top, as well as the legs, appendages shorter than the vent, which is acute. The young ones are olivaceous rufous; the males are entirely blackish or black, with a black oblong spot on the wings. This species is raised by the *formica melanogaster*, or the black belly ant with the red breast, head and feet, and it is upon it that I have observed many of the facts noticed in the introduction."

This species was considered by Wilson to be a synonym of *Aphis viburni* Scopoli; it is here considered a synonym of *Aphis rumicis* L. This species can not be the brown *Anuraphis viburniphila* described by Patch because the cauda is spoken of as being acute.

18. "*Aphis crategus-coccinea.* Body oboval, pale green, with two dark stripes on the back of a brownish green; antens green half of body's length, appendages very short, vent acute. Feeds on the leaves of *crategus-coccinea.*"

This species was considered by Wilson to be the same as *Aphis crataegifoliae* Fitch. Apterous forms of *A. crataegifoliae* on crataegus have a pink or light crimson head and thorax, a characteristic which Rafinesque would most certainly not have overlooked. Furthermore the cauda is said to be acute, this statement indicates clearly that the species described was not an Anuraphis. *Rhopalosiphum prunifoliae* (Fitch) is here considered a synonym of *Rhopalosiphum crategus-coccinea* (Raf.).

19. "*Aphis cornus-stricta.* Body oboval, black, head squared truncated; antens two-thirds of body's length with a white base, legs white at the top, appendages very short, vent nearly acute. The males have wings double the body's length, with a large black spot underneath. Covering the branches (rarely the leaves) of *cornus stricta.*"

This species, probably described from mature specimens to judge from statement in regard to cauda, was considered by Wilson to be synonymous with *Aphis cornifoliae* Fitch. *Aphis cornifoliae* Fitch is an Anuraphis and it confines its attack entirely to the leaves according to my observation, hence, Wilson's placement can not be accepted. *Aphis helianthi* Monell is considered here a synonym of *Aphis cornus-stricta* (Raf.), despite the fact that it is not black as the description states. In this connection, however, it should be noted that Monell in his original description of helianthi described the color as dark green with various irregular and variable darker shadings on the abdomen.

20. "*Aphis populus-grandidentata.* Body oboval obtuse, reddish black, head truncated, back annulated, antens one-third of the body's length, appendages obtuse, exceedingly short, vent obtuse. Male with many oblong blackish spots on the wings. This species is found on very high tree, and often on the upper leaves and branches. Length one line. It is remarkable by the many spots on the wings of the male, while most of the species have only one large spot on the lower side of each wing, and a few species have unspotted wings."

Wilson considered *Chaitophorus populifoliae* Fitch a synonym of this species. The species Wilson had in mind was undoubtedly *Chaitophorus populifoliae* Oestlund (Davis), since *Aphis populifoliae* Fitch is a Clavigerus. The description of the wings of the "male" of this species indicates clearly that the species described was *Neothomasia populicola* (Thomas), which is here placed as a synonym of *Neothomasia populus-grandidentata* (Raf.).

21. "*Aphis populus-trepida.* Body oboval, pale green, with two dark or brown stripes on the back, which is annulated, head truncated, antens whitish two-thirds of the body's length, feet whitish, appendages elongated, as long as the vent, which is acute. I have not seen the male of this species."

Wilson incorrectly considered *Chaitophorus populifoliae* Thomas a synonym of this species. The description of this species was undoubtedly based upon a composite species, part of which probably referred to *Chaitophorus populifoliae* Oestlund (Davis) and part to a typical aphis, as is indicated by the statement regarding the cornicles and cauda.

22. "*Aphis jacobea-balsamita.* Body oboval oblong, very slightly annulated, entirely of a shining bronze colour; antens as long as the body, not shining, with some brown rings; legs with black knees and articulations; appendages black, stiff, longer than the vent, which is acute appendiculated. A very fine species of a metalic brass colour, the young ones are more oblong, darker, more annulated; the old ones of a light or pale colour, nearly obtuse behind, and smooth or scarcely annulated."

This is unquestionably the first description of the species long since known as *Macrosiphum ambrosiae* (Thomas). Wilson considered it a synonym of the next species.

23. "*Aphis oreaster.* Body oblong, of a brownish or dark bronze colour; head truncated; antens brown, as long as the body, legs brown; appendages longer than the vent, which is appendiculated; males with unspotted wings. Found on several species of *aster* on the highlands, particulary the *aster simplex;* the specific name means *mountain-asters.*"

Wilson recognized the name oreaster over jacobea-balsamita. The description of *Aphis jacobea-balsamita* is considered to be better than the description of *Aphis oreaeter;* therefore the priority of the former is here recognized.

24. "*Aphis erigeron-strigosum.* Body oboval oblong, reddish; antens as long as the body, blackish as well as the legs; appendages longer than the vent which is mucronute. In the old ones the body becomes flattened, of a reddish brown, and the appendage of the vent becomes longer."

This species was considered by Wilson to be synonymous with *M. rudbeckiae* (Fitch).

25. "*Aphis gibbosa.* Body oboval, reddish fulvous, head truncated, thorax yellowish and gibbous, abdomen acute slightly annulated; antens longer than the body, brown, base gray; legs grey, knees and feet black; appendages brown, longer than the vent, which is appendiculated; males with unspotted wings. Found near Newburgh, on several species of solidago, particularly the *S. odora, S. altissima,* &c."

This is the first unquestioned description of the species since known as *Macrosiphum rudbeckiae* (Fitch). The name *Aphis gibbosa* is recognized here over that of *Aphis erigeron-strigosum,* which has page priority because of the better description and because of the host plant being the one more commonly associated with this form.

26. "*Aphis xanthelis.* Body oblong cuneate, of a dark brown bronze colour, head truncated, abdomen slightly annulated; antens as long as the body, blackish as well as the legs; vent acute, appendages elongated erect: males blackish, with a linear yellowish spot on the wings. Noticed on the *solidago nemoralis;* size very unequal, from half a line to two lines long; the specific name means yellow spotted."

This species is unquestionably the same as *Aphis jacobea-balsamita* as Wilson considered it.

27. "*Aphis annulipes.* Body oboval, reddish brown, head truncated; antens two-thirds of body's length; legs with pale rings; vent obtuse, appendages very short divergent. Observed in September near Oysterbay, Long Island, on *Hieracium gronovi* and *H. paniculatum,* length one line."

This species is here considered a synonym of *M. hieracii* (Schrank). The synonymy of *Aphis annulipes* established by Wilson is not recognized.

28. "*Aphis hieracium-paniculatum.* Body oblong, of a shining reddish brown, abdomen a little curved or depressed above, and annulated; antens as long as the body, whitish at the base as well as the legs; vent acute, appendages elongated horizontal; male with vertical appendages, mucronute vent, and wings with a greenish brown spot. Found on the *hieracium paniculatum* only, in October, near Flatbush, Long Island, a very singular species, the hind part of the body is raised; the males are much larger than the females."

As the former species *Aphis hieracium-paniculatum* is a synonym of *Aphis hieracii* Schrank.

29. "*Aphis verbena-hastata.* Body pale green annulated oboval; antens as long as the body, head truncated, appendages short. Length of the body one line, vent mutic."

Because of the brevity of the description, it is impossible to place this species.

30. "*Aphis polanisia-graveolens.* Body black oblong oboval slightly annulated; antens as long as the body, base and top gray; legs with the base and a ring in the middle gray; appendages longer than the vent, which is acute; males with a brownish spot on the wings. Found near Newburgh, in June, on the leaves and flowers of the *polanisia graveolens* or *cleome dodecandra* L. where it is singular that they should be raised, since the vicinity of this plant must be some impediment; length of the body one line."

This species is not recognized.

31. "*Aphis arabis-mollis.* Body oboval oblong glaucous green, a row of black dots on each side; antens brown nearly as long as the body, appendages short, vent acute. A small species, less than one line in length."

This species has not been placed (up to the present time).

32. "*Aphis polygala-senega.* Body oboval brown; antens longer than the body, with pale rings, as well as the legs; appendages short, vent nearly obtuse. Noticed in June; length about one line."

This species has not been placed (up to the present time).

33. "*Aphis brassica-napus.* Body elliptic, pale greenish, covered with a white dust, a blackish spot on each side; head narrow truncated; antens half body's length, blackish as well as the legs; vent acute, appendages short, dentiform. Found in gardens sometimes also on the *brassica.*"

This species is unquestionably a synonym of *Aphis brassicae* L.

34. "*Aphis erigeron-canadense.* Body oboval green; antens brown, shorter than the body; appendages brown, elongated one third of the total length, oviduct elongated. The body is about one line long, the oviduct appears as a third appendage. Found on Long Island."

This species is here considered a synonym of *A. erigeron-philadelphicum* Raf.

35. "*Aphis ambrosia.* Body oboval, yellow, acute behind; head truncated; antens half the length of the body, a little brownish, feet tipped with brownish; appendages brown elongated upright; very small, body only

half a line long. Found on Long-Island on several species of the genus *ambrosia:* they are raised and bred by a new species of ants, which I have called *formica fasciata.*"

This species is probably another synonym of *A. jacobea-balsamita* Raf.

36. "*Aphis acaroides.* Body oboval reddish, obtuse behind, antens very short, feet brown, appendages obtuse wart shaped. The smallest species observed, scarcely one-fourth of a line long, having much the appearance of an *acarus;* found also on Long-Island on the *dileptium virginicum,* (lepidium virginicum L.) raised likewise by the *formica fasciata,* which is itself rather a small ant."

This species cannot be recognized from the description.

### Consideration of genera proposed by Rafinesque

The genus *Loxerates* was erected to include *Aphis diervilla-lutia* and *Aphis erigeron-philadelphicum. Aphis diervilla-lutia* has been made the type of the genus by Börner. Since the type of the genus is unknown, the genus *Loxerates* must remain unknown until its type is located. Börner has suggested that the genus *Myzaphis* is a synonym of the genus *Loxerates* but the question of generic synonymy will have to await the discovery of the type species of *Loxerates.*

The genus *Dactynotus* was erected as a subgenus of *Aphis,* but at the present time it may be accorded full generic rank. Börner has set *Aphis hieracium-paniculatum* as the type of this genus. *Aphis hieracium-paniculatum* is in this paper considered a synonym of *Aphis hieracii* Schrank. As indicated previously (discussion under species No. 4) *Aphis hieracii* Kaltenbach is a synonym of this species. Theobald in 1913 recognized *Aphis hieracii* Kalt. as a Macrosiphum, in 1926 he recognized it as belonging to the genus Myzus; a placement which if correct sinks the genus Myzus as a synonym of the genus Dactynotus. Theobald's figure of the head of *M. hieracii* (Kalt.) seems to indicate that the species under consideration here belongs to what is now known as the subgenus Neomyzus of the genus now known as Myzus.

The genus Adactynus was erected as a sub-genus of the genus Aphis. If the synonymy suggested here for the species *Aphis pteris-aquilinoides* (the type of the genus) is accepted the genus Macrosiphum Pass. is unquestionably a synonym of Adactynus Raf.

### Consideration of species described by S. S. Haldeman.

1. "*A. quercus-monticula:* brick red, varied with light yellowish; antennae and legs pale, annulate with black; abdomen flat above, sometimes pale green; appendages short, two-jointed; eyes round and projecting. Varies considerably."

The description of this species was unquestionably based on specimens belonging to two or more species. This species can not be recognized.

2. "*A. rubecula:* deep brick red, outer extremities of the thighs and legs black; appendages long and taper."

This species is here placed as a synonym of *Adactynus gibbosa* Raf. It

should be noted that this species is not a homonym of *Aphis rubicola* Oestlund, as the writer indicated in a previous paper.

3. "*A. castanea-vesca:* body flat above, appendages obsolete; young white, legs and antennae black, two marginal and two dorsal rows of large black spots; adult nearly black, with the spots obsolete."

This species is probably (especially if description was based upon oviparous females) synonymous with *Calaphis castanae* (Fitch), over which it has priority.

4. "*A. bicolor:* light yellowish green; head, antennae, appendages, mesothorax, legs (except the anterior femora and part of the leg) blackish."

This species is here placed as a synonym of *Aphis pomi* DeGeer.

5. "*A. marginipennis:* light brown, covered with white down; thorax dark, abdomen large and inflated, appendages short; rostrum and antennae corneous, with the extremity black; eyes prominent, reddish brown; wings large, external margin brown. Female (fig. 6) black, somewhat hirsute; legs brown, ciliated; head, antennae and thighs, pale corneous. A large species. Hab. Pinus mitis."

This species is probably a synonym of *Cinara pini* (L.).

6. "*A. pilosa:* grey, with a short dense pile, which is wanting upon the numerous circular black spots of the surface; base of the antennae and femora corneous; feet and tibiae black, except a small testaceous portion next the knee joint of the 2d and 3d pairs. Perhaps Aphis salicis, Lin. as it occurs upon an exotic species of salix."

This species is here placed as a synonym of *Clavigerus salicis* (L.)

7. "*A. discolor:* black, abdomen brownish yellow; anterior legs brown; appendages short."

This species is not recognized from the short description.

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# TWO NEW CRABS FROM THE GULF OF MEXICO.

BY MARY J. RATHBUN.[1]

Through the activities of the Caribbean Biological Laboratories at Biloxi, Mississippi, two new species have been added to the fauna, a giant form of the box-crab *Calappa* and a fourth species of the Goneplacid genus *Chasmocarcinus*.

**Calappa springeri,** sp. nov.

*Type*, female, U. S. National Museum No. 64073, off Pass a Loutre, Louisiana, about 12 fathoms. Collected by Stewart Springer (original No. 40).

Similar to the well known *C. flammea* in size and general appearance, but lacking the striking color pattern of deep red wavy stripes and reticulations. Except along the posterior border and on the tips of the lateral teeth, the carapace in alcohol is a pale pink, slightly deeper in depressions; a small red spot in each lateral sinus, 3 spots on fronto-orbital region. The carpus, collar of merus and upper half of manus are similarly colored, but the superior teeth are covered with fine red speckles.

Carapace longer than in *flammea*, measurements 85 x 123 mm. against 81.6 x 126 in the older form. Front shallow, sinus obtusangled; orbital margin flat, not prominent nor deeply interrupted. Antero-lateral denticles 13, shallow but definitely outlined; behind them are 5 (not 4) larger teeth, narrower at base and less produced sideways than in *flammea*. Middle portion of posterior margin produced, forming a clearly marked angle at either end; of the two large teeth beyond, the outermost has a sharp tip. The granulation of the upper surface and of the margins is finer, lower, and less conspicuous than in *flammea*. The smooth area on lower half of palm is narrow proximally, gradually widening and is continued obliquely upward. The proximal tooth of upper margin is truncate, not bifid; remaining teeth flatter and wider than in *flammea*. Dactyls of ambulatories widest not at their base but at about the proximal fourth. Terminal segment of ♀ abdomen larger than in *flammea*, sides sinuous; sixth segment relatively shorter than in *flammea*, sides concave. Ventral surfaces and margins of appendages less hairy.

[1] Published with the permission of the Secretary of the Smithsonian Institution.

**Chasmocarcinus mississippiensis,** sp. nov.

*Type*, male, U. S. National Museum No. 64074, Mississippi Sound near Horn Island, Mississippi, 2–5 fathoms, mud bottom, Apr. 5, 1931. Collected by Stewart Springer (original No. 64).

Carapace 7/10 as long as wide, very convex longitudinally, nearly level transversely; surface punctate; two deep crescentic grooves at middle; cardiac region and cervical suture partially indicated; antero-lateral margin sharply margined. Upper border of orbits transverse; anterior border of front truncate between the orbits and outside them; a short median groove. Chelipeds unequal, punctate; lower margin of propodus sinuous; fingers irregularly toothed, in right or major chela gaping for basal 2/3, the dactylus somewhat arched; in minor chela fingers closing except for a small hiatus at base. Second and third ambulatories subequal, dactyl of third slightly the longer. Greatest width of abdomen less than half width of sternum in the same line; lateral margin of coalesced segment sinuous, penult segment appreciably wider than long, terminal segment triangular, elongate. Length of carapace 8.6, width of same 11.7, fronto-orbital width 5.3 mm.

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# THE STATUS OF THE SPOTTED RACE-RUNNER, CNEMIDOPHORUS SEXLINEATUS GULARIS (BAIRD AND GIRARD.)

BY CHARLES E. BURT.[1]

Through the kindness of Mr. H. W. Parker of the British Museum of Natural History, I have recently obtained additional notes pertaining to the Mexican race-runner described by Wiegmann (1834) as *Cnemidophorus sackii*.[2] At the time of writing my recently published study of the genus *Cnemidophorus* (1931), I was forced to regard this form as a species of uncertain taxonomic position (p. 249) due to a dearth of information occasioned by my inability to examine the type specimen and by the inadequate nature of the original description. Fortunately, from the standpoint of ultimate nomenclatorial stability, the data now available are sufficiently concise to warrant the placing of the Texan race-runner described as *gularis* by Baird and Girard (1852) as a strict synonym of *sackii*. The new synonymy will include, of course, the many references that I have listed previously (1931, pp. 97–101) under the head of *Cnemidophorus sexlineatus gularis* (Baird and Girard) as well as all of the entries placed below.

**Cnemidophorus sexlineatus sackii** (Wiegmann).

SPOTTED RACE-RUNNER.

1834. *Cnemidophorus sackii* Wiegmann, Herpetologia Mexicana, p. 28 (type locality, "Mexico"; type specimen, Berlin Mus. No. 884).—Gray, Cat. Liz. British Mus., 1845, p. 22.—Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 125.—Peters, Monatsber. Akad. Wiss. Berlin,

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[2] These data were secured by Mr. Parker on a personal visit to the Berlin Museum where the type specimen of *sackii* is kept.

1869, p. 63.—Günther, Zool. Rec. for 1869, vol. 6, 1870, p. 111.—Sumichrast, La Naturaleza, ser. 1, vol. 6, 1884, p. 39.—Duges, La Naturaleza, ser. 2, vol. 1, 1888, p. 119; *Idem.*, vol. 2, 1897, p. 480.—Burt, Bull. U. S. Nat. Mus., no. 154, 1931, p. 249.

1852. *Cnemidorphorus gularis* Baird and Girard, Proc. Acad. Nat. Sci. Phila., p. 128 (type locality, "Indianola and the Valley of the Rio Grande del Norte," Texas; 14 cotypes, U. S. N. M. Nos. 2989 and 3022; Col. Graham, collector).

1856. *Cnemidophorus sexlineatus sackii* Lichtenstein, Nomenclator Mus. Zool. Berol., p. 13 (part).

1862. *Ameiva sackii* Cope, Proc. Acad. Nat. Sci. Phila., p. 63.

1874. *Cnemidorphorus sexlineatus sackii* Bocourt, Miss. sci. Mex. et Amer. cent., vol. 3, p. 276, pl. 20c, figs. 6, 6a–c.

1931. *Cnemidophorus sexlineatus gularis* Burt, Bull. U. S. Nat. Mus., no. 154, p. 97.

The original diagnosis of *sackii* may be translated from the Latin as follows: "Gular scales subequal, small, elongate; mesoptychial scales moderate, imbricate; greenish above, variegated at the sides with transverse blackish bands and with two pale stripes." To this was added the following elaboration, also in Latin: "The sides, pale olive blackish, and bordered laterally with a pale longitudinal stripe, are varied by very many transverse bands, dusky to blackish. Of the lateral stripes, one, extending back of the occiput close to the back, ends at the base of the tail, and the other, parallel to it, beginning near the suborbital scales and continuing on the side disappears in front of the femur."

From the foregoing descriptive passages alone it is evident that *sackii* may be identical with any one of three Mexican forms, namely: *gularis*, *perplexus*, or *tessellatus*, all of which range northward into the United States. Further discrimination without the entry of additional data proves to be a task fraught with difficulty on every hand for nothing has been said about such important items as the postantebrachial scutellation, the ventral coloration, and the size of the type specimen. The attempts of previous writers to solve the problem have resulted, naturally enough, in considerable taxonomic confusion. In 1856, Lichtenstein reported the form not only from Mexico, but also from Montevideo in Uruguay as well. The latter record was probably based on *Teius teyou teyou*, which resembled *Cnemidophorus* only superficially. Bocourt (1874) and Sumichrast (1884) have correctly identified specimens from Oaxaca in southern Mexico as *sackii*. However, Peters (1869), Boulenger (1885), and Günther (1885) all thought the species to be synonymous with *tessellatus;* and Gadow (1906) published a corroboration of this assumption after a personal examination of the type specimen. Yet, from a purely reflective point of view it appears that both Peters and Gadow saw very few specimens of *tessellatus* and in addition did not take the opportunity to mention their criteria for placing *sackii* in the synonymy of that species, thus placing even their decisions in the realm of the uncertain.

Mr. Parker's recent description of the type specimen of *sackii*, which is

accompanied by a helpful diagram of the posterior surface of the forearm, may be transcribed as follows: "Type in very fair condition; regarded as '*C. sexlineatus tessellatus*' in Berlin. Edge of collar granular, except in middle where five rather large scales reach the edge; about seven rows of gradually dwindling postbrachial scales, these subcontinuous with the postantebrachials; posterior surface of forearm with one row of much enlarged scutes; femoral pores, 22–22.

"Coloration varied; ventrally, the anterior portions of each scale are black; dorsally, the general ground color is greenish, with an uninterrupted light line from the superciliary ridge above the eye to the base of the tail and with another light line extending from below the eye along the upper border of the ear and above the forelimb to the hindlimb. A dorsal pair of light stripes very faintly indicated; mid-dorsum with very faint dark transverse bars; a series of these bars between the dorsal and upper lateral stripes, and a corresponding set of vertical black bars, about as wide as their interspaces, between the two lateral stripes on each side, these very pronounced and quite regular; a series of dark spots, corresponding to the vertical bars, beneath each lateral stripe.

"Measurements: snout to anus, 108 mm.; tail, 240 mm.; total length, 348 mm."

Careful analysis of all of the facts now available forces the conclusion that *sackii* must replace *gularis* as the name for the spotted race-runner that is so common in Texas and Mexico, and conversely that this Wiegmannian specific appellation can not be fairly placed in the unusually large list of synonymic names already coined from the highly variable *tessellatus*. The most pertinent considerations are elaborated in the following paragraphs in the general order of their importance.

The posterior surface of the forearm of *sackii* shows a series of much enlarged scutes. This condition has not been observed in *tessellatus* and its allies but it is among the chief diagnostic characters of *gularis* and its closely related subspecies, *perplexus*. Therefore, the appearance of this feature in *sackii* excludes the possibility of the identity of the form with *tessellatus*.

The general coloration of *sackii* is that of *gularis* and *perplexus*, rather than that of *tessellatus*, when it is realized that the type specimen measures 108 millimeters in body length, for the presence of "uninterrupted light stripes" on the sides of a specimen of this length is entirely atypical of *tessellatus*. On the other hand the cross-barring, as described, is frequently found in *gularis* and *perplexus* of the size just given, as well as the lined condition mentioned above. The suggestion that the back of *sackii* is lighter than the sides indicates *gularis* rather than *perplexus*, and the presence of dark markings on the ventral scales also strongly supports this inference. However, the most important distinction of all seems to be that the two dorsal stripes are very faint in *sackii*, just as they are in certain aberrent color-varieties of *gularis* from southern Mexico that I have examined, rather than sharply defined, as they would be in *perplexus* if the stripes were present on the sides.

The mesoptychial region of *sackii* bears some enlarged scutes in the

median region, about five of which reach the edge along the posterior gular fold. This, too, is characteristic of *gularis* and *perplexus* rather than *tessellatus*. The granules at the side of the large mesoptychial fold probably indicate that the type of *sackii* was collected in a relatively sandy area, since their appearance seems correlated with such an environment.

The femoral pores of the type specimen of *sackii* were 22 on each side. This is near or slightly above the average number found in specimens of *gularis* from southern Mexico, although *gularis* in Texas has only from 14 to 20 femoral pores, a general, though gradual, decrease being found in the more northern individuals. In the Sonoran region, *perplexus* has from 14 to 23 femoral pores, with the average much lower than 22.

In conclusion, attention may be called to the fact that the historical possibilities favor the decision that *sackii* is like *gularis*. In Mexico, *perplexus* occurs only in the Sonoran region of the northwest, *gularis* occurs everywhere else including the entire southern and eastern portions, and *tessellatus* occurs only in the northwest in the same general section as *perplexus*. According to a recent statement from Dr. S. W. Geiser, a leading authority on the biological history of the Southwest, a number of early German collectors settled in southern Mexico or visited the region. It follows that these men probably secured Wiegmann's specimens and that only *gularis* would theoretically have been expected in the series. This hypothesis is supported by the fact that most of the abundant wide-ranging species of southern Mexico, including such forms as *Sceloporus spinosus spinosus*, *Heloderma horridum*, *Cnemidophorus guttatus*, and *Cnemidophorus deppii deppii*, were originally described by Wiegmann, whereas the dominant species of northern Mexico were first made known by other writers.

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PROCEEDINGS

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# SIX NEW SOUTH AMERICAN SPECIES OF VERBESINA.

BY S. F. BLAKE.

This paper contains descriptions of six new species of *Verbesina* from South America, all but one of which belong to the Section *Ochractinia*.

**Verbesina aligera** Blake, sp. nov.

Sect. Ochractiniae; frutex; caulis strigosus alatus; folia alterna oblongo-elliptica vel subobovata magna acuta serrulata non lobata utrinque strigillosa vix asperula, petiolo ubique alato in caulem longe decurrente; capitula minima alba radiata ca. 7-flora subsessilia paniculata.

"Shrub about 3 m. high"; stem stout, pithy, densely strigose; leaves 18–21 cm. long (including the entirely margined petiole), 5–7 cm. wide, acute or short-acuminate, gradually or rather abruptly contracted into the cuneate petiolar part, uninterruptedly decurrent on stem into 2 herbaceous entire wings 3–5 mm. wide and 3–5 cm. long, minutely serrulate above the entire cuneate basal part (teeth obtuse, callous, 0.2 mm. high, mostly 2–5 mm. apart), herbaceous, above dark green, somewhat shining, evenly strigillose with scarcely tuberculate-based hairs, beneath more brownish-green, similarly pubescent, penninerved, the principal veins (above the petiolar base) about 7–11 pairs, prominulous beneath, the secondaries slightly prominulous-reticulate; panicles axillary (and doubtless terminal), rounded, very many-headed, about 8 cm. wide, the peduncle strigose or erectish-pubescent, about 8 cm. long, the bracts minute, the pedicels similarly pubescent, usually suppressed, sometimes 4 mm. long; heads about 9–10 mm. wide; disk slenderly campanulate, about 6 mm. high, 2.5–3 mm. thick; involucre about 2.5 mm. high, unequal, the phyllaries about 6, narrowly ovate to oblong, obtuse to acutish, appressed, scarcely subherbaceous, ciliolate and appressed-pubescent; rays 2, white, pistillate, the tube pilosulous, 2 mm. long, the lamina oval, tridenticulate, 5-nerved, 5 mm. long, 3 mm. wide; disk flowers 5–6, their corollas white, pilose on tube and base of throat, sparsely so on teeth, 3.8 mm. long (tube 1 mm., throat campanulate-funnelform, 1.6 mm., teeth ovate, 1.2 mm. long, papillose on margin inside); pales oblong, submembranous, 4.5 mm. long, sparsely pilosulous and ciliolate toward tip, obtuse or short-pointed; immature disk

achenes obovate, 2.5 mm. long, slightly ciliate above on usually only one of the very narrow wings; awns 2, usually unequal, slender, hispidulous, 2–2.5 mm. long.

COLOMBIA: In open place, northern slope of Mesa de los Santos, Dept. Santander, Eastern Cordillera, alt. 1000–1500 m., 11–15 Dec. 1926, *E. P. Killip & A. C. Smith* 15418 (type no. 1,351,296, U. S. Nat. Herb.).

Allied to *V. synethes* and *V. oligactis* Blake, but in both these the stems and branches are wingless, and the stem pubescence is more or less spreading.

**Verbesina auriculigera** Blake, sp. nov.

Sect. Ochractiniae; suffrutex; caulis crassus glaberrimus glaucescens; folia alterna magna ovata profunde 3 (–5)-lobata serrata supra scabra subtus aspere hispidula et prominulo-reticulata, petiolo anguste alato prope basin breviter nudo basi auriculis rotundatis integris praedito; capitula parva ca. 30-flora alba radiata breviter pedicellata ample paniculata, panicula puberula; involucri ca. 3 mm. alti phyllaria saepius linearia obtusa.

"Suffruticose, to 2 m. high," erectish-branched above; stem terete, pithy, striatulate, somewhat lenticellate, 1 cm. thick; internodes of main stem about 5 cm. long; petioles of larger leaves about 5–7 cm. long, cuneate-winged from the rounded or obscurely cordate base of blade nearly to base, normally naked for about 4–8 mm. toward base, at base bearing 2 rounded entire herbaceous auricles about 8 mm. long and 7 mm. wide, not decurrent; blades of larger leaves ovate or deltoid-ovate, 12–25 cm. long, 6–18.5 cm. wide, with 1 (–2) pairs of hastately spreading basal lobes (these oblong or oblong-ovate, 2–7.5 cm. long, 1.3–4.5 cm. wide, acute), acute or acuminate, coarsely and unequally serrate or dentate-serrate (teeth deltoid or depressed, bluntly callous-apiculate, 1–3 mm. high, about 6–9 mm. apart), above dark green, evenly but not densely tuberculate-hispidulous, somewhat bullate, beneath slightly lighter green, rather densely spreading-hispidulous on all the veins and most of the veinlets with slightly tuberculate-based hairs, penninerved, the principal veins about 5–6 pairs, prominulous beneath, the costa stout, whitish beneath; upper leaves mostly oblong, 7.5–15 cm. long, 2–4 cm. wide, unlobed, acute or acuminate at each end, coarsely repand-serrate, not auriculate at base; panicles compound, terminating stems and branches, somewhat convex, 11–18 cm. wide, many-headed, leafy-bracted, densely puberulous with ascending or spreading hairs, the pedicels mostly 2–5 mm. long, sometimes suppressed; heads 12–14 mm. wide; disk campanulate, 6–8 mm. high, 4–6 mm. thick; involucre about 3 mm. high, about 3-seriate, graduate, the phyllaries few, mostly linear or lance-linear, obtuse, subherbaceous above, somewhat pilosulous and short-ciliate; rays about 4–8, white, fertile, the tube pilose, 1.8 mm. long, the lamina oval, 2–3-denticulate, 7-nerved, 5 mm. long, 3 mm. wide; disk flowers 23–25, their corollas white, pilosulous on tube, base of throat, and sparsely on nerves above, 4.6 mm. long (tube 1 mm., throat cylindric-funnelform, 3 mm., teeth ovate, 0.6 mm. long); pales narrow, 7 mm. long, toward apex blackish green, puberulous, and ciliolate, the tip pale, obtuse or acutish, glabrous, erose, subscarious; immature disk achenes narrowly

obovate, 2.8 mm. long, sparsely pubescent toward apex, narrowly 2-winged, ciliolate on the wings; awns 2, hispidulous, 2–2.5 mm. long.

PERU: In "rainy-green shrubwood," Mantaro Valley, near La Mejorada, Prov. Tayacaja, Dept. Huancavelica, alt. 2800–2900 m., 21 March 1926, *A. Weberbauer* 7612 (type no. 562532–3, herb. Field Mus.; dupl. no. 1,284,120–1, U. S. Nat. Herb.).

A species of the *V. gigantea* alliance, distinguished by its broad, mostly 3-lobed leaves with roundish basal auricles.

**Verbesina retifera** Blake, sp. nov.

Sect. Ochractineae; herbacea (?) alta; caulis glaberrimus; folia alterna maxima lyrato-pinnatifida acuminata supra laevia bullata subtus densissime prominulo-reticulata et in venis venulisque dense tuberculato-hispidula, petiolo ubique alato basi in caulem acute decurrente non auriculato; capitula parva ca. 20-flora radiata alba numerosissima subsessilia, panicula ampla puberula.

Stem (above) terete, pithy, striatulate, 8 mm. thick, somewhat pustulate, greenish, scarcely glaucescent; petiole about 11 cm. long, cuneate-winged to base (wing about 6 mm. wide on each side at base) and acutely decurrent on stem for 2.5 cm.; blade ovate in outline, about 27 cm. long, 22 cm. wide, lobed to middle or deeper with 2 pairs of lance-ovate acuminate or attenuate lobes (the lateral about 7–10 cm. long, 4–5.5 cm. wide at base, the terminal lobe ovate, about 14 cm. long, 8 cm. wide), remotely serrulate (teeth blunt, callous, 0.5 mm. high, mostly 5–8 mm. apart), above sordid-pilose along the chief veins, otherwise glabrous, somewhat bluish-green and shining, impressed-veined and bullate, beneath duller green, the principal lateral veins about 8 pairs; peduncle axillary, 15 cm. long, essentially glabrous; panicle 15 cm. wide, slightly convex, many-headed, the pedicels mostly 2 mm. long or less; heads 7–8 mm. wide; disk oblong, 7 mm. high, 3 mm. thick; involucre about 2 mm. high, about 2-seriate, the phyllaries few, unequal, lance-linear, mostly obtuse, subherbaceous above, sparsely pilosulous and ciliolate; rays 3–4, white, fertile, the tube pilosulous, 1.5 mm. long, the lamina oblong-oval, 3.5 mm. long, 1.8 mm. wide, 3-denticulate, about 5-nerved; disk flowers 16–17, their corollas white, tinged with blackish green above, pilosulous on tube and base of throat, 3.5 mm. long (tube 1 mm., throat slender-funnelform, 2 mm., teeth ovate, 0.5 mm. long); pales blackish green above, there pilosulous and ciliate, the extreme tip pale, blunt, glabrous, erectish; disk achenes (immature) slenderly obovate, with substipitiform base, ciliolate, sparsely pubescent on sides toward apex, 2.5 mm. long, 0.6 mm. wide, obsoletely winged; awns 2, slender, unequal, hispidulous, 2–2.5 mm. long.

PERU: Lares Valley between Huallhuayoj and Mantoc, Prov. Calca, Dept. Cuzco, 9 March 1929, *A. Weberbauer* 7918 (type no. 1,442,744, U. S. Nat. Herb.).

A species of the *Verbesina grandis* group, distinguished by its leaf-characters. The type consists of a small piece of stem bearing a single leaf and an axillary panicle.

**Verbesina killipii** Blake, sp. nov.

Sect. Ochractiniae; frutex v. arbor parva; rami crassi angulati strigillosi alati; folia alterna ovali-oblonga magna acuta serrulata non lobata paene ad basin petioli cuneate decurrentia ibi rotundata vel obscure auriculata, alis 2 caulinis ca. 4 mm. latis praedita, supra aspera subtus subaspere hispidula; capitula submagna alba radiata multiflora subnumerosa cymosa pedunculata; involucri ca. 7 mm. alti gradati phyllaria oblonga v. late ovalia dense ciliolata obtusa, apice subherbaceo appresso; radii ca. 12, ca. 1 cm. longi.

"Shrub or low tree, the trunk 5 cm. in diameter"; branch (or upper part of stem) stout, about 8 mm. thick, pithy, bluntly angled, grayish, densely strigillose; internodes about 1–3 cm. long; larger leaves 19–24 cm. long, about 7.5 cm. wide, the blade cuneately decurrent on petiole to within 1 mm. of its base and there rounded or subcordate, acute or short-acuminate at apex, serrulate nearly throughout (teeth very small, blunt, callous, about 3–9 mm. apart), firmly herbaceous, above somewhat yellowish green, evenly tuberculate-strigillose or antrorse-hirsutulous (the tubercles small, persistent), densely sordid-hispidulous with subappressed hairs along the chief veins, beneath scarcely paler green, evenly and densely antrorse-hispidulous with scarcely tuberculate-based hairs, feather-veined, the chief veins (above the petiolar base) about 10 pairs, prominulous beneath, the secondaries lightly prominulous-reticulate; wings of stem 2 from base of each petiole, usually rounded at each end, entire, decurrent nearly to the petiole of the leaf below; upper leaves oblong or obovate-oblong, 6–10 cm. long, similar to the lower but with the cauline wings often continuous with the margin of petiole; heads about 2.5 cm. wide, in axillary and terminal pedunculate cymes of about 5–7, forming a rounded panicle, the peduncles much surpassing the subtending leaves, the densely strigillose pedicels thickened apically, mostly 1–3 cm. long; disk hemispheric-campanulate, about 11 mm. high and thick; involucre about 4-seriate, appressed, the outermost phyllaries oblong or ovate-oblong, about 3 mm. long, 1 mm. wide, with indurate base and shorter herbaceous tip, about 3-vittate, densely ciliolate, sparsely strigillose, the inner broadly ovate or oval, nearly or quite glabrous dorsally, 2.5–3 mm. wide, the innermost similar but with submembranous tip; rays about 12, pistillate, white, the tube 2.5 mm. long, puberulous, the lamina oblong, 3-denticulate, 10 mm. long, 3.5 mm. wide, 7-nerved; disk flowers about 75, their corollas white, subcylindric, sparsely puberulous at base of throat or essentially glabrous, 4.8 mm. long (tube 0.8 mm., throat 3.2 mm., teeth ovate, 0.8 mm. long, papillose on margin); pales substramineous, acute, sparsely ciliolate above, hirsutulous on keel, about 8 mm. long; immature disk achenes narrowly obovate, 4 mm. long, glabrous except for the very narrow ciliolate wings; awns 2, slender, minutely hispidulous, subequal, slender, 4 mm. long.

Colombia: Open hillside, between Piedecuesta and Las Vegas, Dept. Santander, Eastern Cordillera, alt. 1200–2000 m., 19 Dec. 1926, *E. P. Killip & A. C. Smith* 15460 (type no. 1,351,334, U. S. Nat. Herb.).

In foliage and in the large white heads this species is strikingly similar to *V. humboldtii* Spreng. (*V. lehmannii* Hieron.), but in that species the stem is wingless and spreading-pilose to ascending-pilosulous.

**Verbesina simulans** Blake, sp. nov.

Sect. Ochractiniae; frutex; caulis glaberrimus vel parcissime pilosus foliosus; folia alterna elliptico-oblonga minuscula calloso-serrulata acuminata basi cuneata brevissime nudo-petiolata supra lucida glaberrima subbullata, subtus non pallidiora prominulo-reticulata penninervia costa saepe parcissime pilosa ceterum glaberrima; capitula parva ca. 22-flora alba radiata saepius breviter pedicellata, panicula angusta densissime sordido-pilosa; phyllaria oblonga crasse subherbacea; radii 2–4; achenia breviter 1-aristata.

Shrub, 3 m. high; branches greenish, subangulate, 3 mm. thick, perfectly glabrous or with very scattered loose hairs; internodes 0.8–2 cm. long; petioles naked, 1.5 mm. long, sometimes ciliate; leaves 6–9.5 cm. long, 1.5–2.5 cm. wide, acuminate with obtuse callous tip, cuneate at base, callous-serrulate on the sometimes narrowly revolute margin (teeth very blunt, 1–3 mm. apart), chartaceous, feather-veined, the chief veins about 7–12 pairs, like the veinlets impressed above and prominulous-reticulate beneath, the costa whitish and prominent beneath; heads about 8 mm. wide, in cymes of about 5–8 at tips of stem and peduncles, forming a rounded terminal panicle about 5 cm. wide, the peduncles about 4 cm. long, exceeding the subtending leaves, spreading-pilose mostly in lines, the pedicels mostly 2–7 mm. long, densely spreading-pilose with yellowish-white hairs; involucre about 4 mm. high, unequal, the phyllaries very few, oblong, about 1.2 mm. wide, obtuse, greenish, coriaceous-subherbaceous, erose-ciliolate, otherwise glabrous, essentially nerveless; rays 2–4, white, pistillate, the tube sparsely pilosulous, 1.8 mm. long, the lamina oval, emarginate, 6-nerved, 5.5 mm. long, 4 mm. wide; disk flowers 18–19, their corollas white, 5.2 mm. long, erectish-pilose on tube and base of throat (tube 1.4 mm., throat subcylindric, 2.8 mm., teeth ovate, 1 mm. long, papillose-margined inside); pales rather broad, obtuse or minutely apiculate, glabrous, erose toward apex, 6.5 mm. long; immature ray achenes glabrous, not evidently winged, epappose; immature disk achenes oblong-obovate, 2 mm. long, glabrous, not obviously winged; awn 1, slender, minutely hispidulous, 0.8–1.2 mm. long, sometimes wanting.

Venezuela: Along river, Chachopito, near San Rafael, Mérida, 19 Jan. 1929, *H. Pittier* 13222 (type no. 1,440,607, U. S. Nat. Herb.).

A member of the Section *Ochractinia*, nearest *V. acuminata* DC. In that species, as represented by *Fendler* 2352 (Gray Herb.) from valley of Macarao, *Jahn* 48, from Páramo de Cristalina, Trujillo, and *Jahn* 430, from Páramo de Piñango, Venezuela, the leaves are much longer (12–25 cm. long including the short petiole, 1.8–5.5 cm. wide), acuminate to attenuate at both ends, and densely subappressed-pubescent beneath at least when young, but somewhat glabrescent in age, and the disk corollas and awns have decidedly different proportions. The corollas are 3.8–4.3 mm. long, with the tube 1–1.2 mm., the throat 1.7–1.9 mm., and the teeth 1.2–1.4 mm. long, the teeth being thus about two-thirds as long as the throat. The awns are 2–3.5 mm. long, being always much longer than the tube and often equaling the tube and throat together. The undescribed *Verbesina moritziana* Schultz Bip., published by Klatt as a synonym of *V. acuminata*, and

based on *Moritz* 833 from Caracas, is shown by fragments (now in the U. S. National Herbarium) of Schultz's type to have been properly referred by Klatt. The corollas in this specimen have somewhat shorter teeth (1 mm. long, the throat 2 mm., the tube 1 mm.) than the specimens mentioned above, but the plant clearly falls within the variation to be expected in *V. acuminata*, with which it agrees in foliage and pappus awns.

Superficially this plant is so closely similar to *V. laevifolia* Blake, also of Venezuela, that at first I was inclined to consider it a radiate form of that species. In *V. laevifolia*, however, the leaves are strictly glabrous beneath, the heads are discoid and 10-flowered, and the teeth of the disk corollas are decidedly longer than the throat.

The vernacular name of *V. simulans* is given as "resinoso."

**Verbesina peraffinis** Blake, sp. nov.

Sect. Lipactiniae; herbacea alta; caulis glaber glaucescens; folia alterna magna pinnatilobata supra laevia subtus dense pilosiuscula, petiolo ubique alato breviter auriculato-decurrente; capitula minima discoidea alba 13–15-flora ample paniculata; phyllaria albido-straminea; achenia late alata.

Stem (above) pithy, striate, 5 mm. thick; upper internodes 2–3 cm. long; mature leaf about 35 cm. long (including petiole, this 12 cm. long, 2.2 cm. wide at apex, about 9 mm. at base, the wings dilated into rounded auricles about 4 mm. wide, decurrent for about 5 mm.), 24 cm. wide, ovate in outline, truncate at base of blade, 9-lobed (the lobes lanceolate or oblong-lanceolate, acuminate, callous-denticulate and the larger often with a lobe on the lower side near middle, the second pair largest, 11 cm. long, 2–4 cm. wide, the broadly winged rachis 1.8–3.5 cm. wide), above green, smooth to the touch, along the veins sordid-pilosulous and whitish-pilose, pilosulous mainly toward margin with subtuberculate-based hairs, beneath in youth densely and cinereously subtomentose-pilose, at maturity rather densely pilosulous with spreading or somewhat antrorse-curved soft hairs with slightly tuberculate bases, papery, the costa and main nerves prominent beneath, the veinlets prominulous-reticulate; leaves below the inflorescence greatly reduced, 4–6 cm. long, lanceolate, entire or barely lobed; heads rather slender, 4.5–(fruit) 6 mm. high, numerous in a flattish panicle 15 cm. wide, its main axis glabrous, the branches rather sparsely incurved-puberulous, the bracts minute, the pedicels slender, 2–10 mm. long, rather densely puberulous with somewhat spreading sordid hairs; involucre few-seriate, graduate, 3–4 mm. high, the phyllaries few, the outermost small, linear or subulate, acute, the others linear or linear-oblanceolate, acute or acuminate, all whitish-straminеous, finely puberulous, the tips somewhat thinner and often faintly purplish-tinged; corollas white, densely hirsutulous on tube and to middle of throat, 3.7 mm. long (tube 1 mm., throat 1.7 mm., abruptly funnelform-dilated at middle, teeth ovate, 1 mm. long); pales cuneate when flattened, whitish, puberulous above, abruptly short-pointed, 3.5 mm. long; achenes cuneate or obovate, the body hispidulous above, 3–3.5 mm. long, 1–1.2 mm. wide, the wings subequal, ciliolate, 0.4–0.6 mm. wide, united to the base of the 2 subequal slender hispidulous awns, these about 2.7 mm. long.

VENEZUELA: El Limón, Aragua, 12 Jan. 1928, *H. Sydow* 212 (type no. 1,421,214, U. S. Nat. Herb.).

A member of the Section *Lipactinia*, allied to *V. bipinnatifida* Baker, *V. crassicaulis* Blake, and *V. minuticeps* Blake. In the first, a little-known Brazilian species, the leaves are rough above and densely and softly griseous-pilose with antrorse hairs beneath, and the phyllaries have very short and appressed subherbaceous tips. In *V. crassicaulis*, of Colombia, the leaves are decidedly pubescent on surface above and pubescent with much longer hairs beneath, the heads are larger and more numerously flowered, and the (young) achenes are scarcely winged. In *V. minuticeps*, described from Ecuador, the closest ally of *V. peraffinis*, the leaves are sparsely but harshly tuberculate-hispidulous above and much more densely pubescent beneath with longer, roughish, ochroleucous hairs with conspicuously tuberculate bases, the outermost phyllaries have short subherbaceous tips, and the achenes are obsoletely winged. *Spruce* 5969, in the Kew Herbarium, from Río Chanchan, Peru, mentioned by Baker as an undescribed species related to *V. bipinnatifida*, has been examined by the writer and found referable to *V. minuticeps*. A photograph and fragments are in the U. S. National Herbarium.

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# A NEW SUBSPECIES OF PEROMYSCUS, FROM SAN JOSÉ ISLAND, LOWER CALIFORNIA, MEXICO.

BY E. RAYMOND HALL.

The species *Peromyscus eremicus*, although widely distributed over Lower California and found on several adjacent islands, seems never to have been recorded from San José Island. A specimen before me from that island differs so markedly from other described races as to indicate the existence of an unnamed subspecies there, which may be known as

**Peromyscus eremicus cinereus,** new subspecies.

*Type.*—Female, adult, skull and skin: no. 43025, Mus. Vert. Zool.; southwest end of San José Island (25° N. latitude), Lower California, Mexico; March 5, 1929; collected by Chester C. Lamb; original no. 10576.

*Diagnosis.*—Size small; skull lightly built; upperparts light grayish; underparts white and lacking ochraceous pectoral spot.

*Remarks.*—As compared with *P. e. eva*, *cinereus* is smaller and lighter colored. The size and proportions of the skull as well as of the entire animal appear to be about as in *P. e. insulicola;* but *cinereus* is much lighter colored than this form and lacks the ochraceous pectoral spot or stripe which it possesses. *P. e. cinereus* has less dusky and ochraceous (as these color terms are employed by Osgood, N. Am. Fauna, no. 28) than either *insulicola* or *eva.*

*Specimens examined.*—One, the type.

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# NEW REPTILES FROM BEATA ISLAND, DOMINICAN REPUBLIC.

BY DORIS M. COCHRAN.[1]

Dr. Alexander Wetmore and Mr. F. C. Lincoln made a short collecting trip to Beata Island off the south coast of the Dominican Republic, where they secured seven species of reptiles, three of which prove to be new to science. The other four species, described in 1923,[2] were: *Ameiva abbotti*, *Ameiva beatensis*, *Anolis longitibialis* and *Leiocephalus beatanus*. Some living examples of the *Leiocephalus* and of *Ameiva abbotti* were brought back for the National Zoological Park, where their striking colors and graceful poses can be studied to good advantage.

**Anolis dominicensis wetmorei,** new subspecies.

*Diagnosis.*—Closely allied to *Anolis dominicensis* found on the mainland of Hispaniola, but differing from it in having four small round black spots in a transverse row just behind the occipital plate; in having slightly smaller scales on the sides of the tail and a more pronounced scalloping of the crest, which has relatively larger scales; in the absence of a pre-occipital, the occipital being completely separated from the supraorbital semicircles by one row of small scales; in the somewhat shorter snout, and in the larger scales of the gular fan.

*Description of the type.*—U. S. N. M. No. 83881, an adult male from Beata Island, Dominican Republic, collected on May 13, 1931, by Dr. A. Wetmore and Mr. F. C. Lincoln. Head very short, the weakly developed frontal ridges becoming indistinct just in front of the orbit; forehead concave; head scales smooth; rostral very low, narrower than the mentals; four scales between the nostrils; a median series of six pairs of rectangular, enlarged scales on the snout from the rostral to the juncture of the supraorbital semicircles which are closely in contact between the orbits; a single small scale where the supraorbital series separates; occipital larger than the ear

[1] Published with the permission of the Secretary of the Smithsonian Institution.

[2] Dr. G. K. Noble, "Four New Lizards from Beata Island, Dominican Republic," Amer. Mus. Novit., vol. 64, 1923.

opening, nearly diamond-shaped, very prominent, completely separated from the supraorbital semicircles by a single row of small scales; supraocular disk composed of five polygonal smooth scales, separated from the semicircles by two rows of granular scales; a group of three small scales bordering the inner anterior edge of the superciliary; canthus rostralis moderately developed, the four enlarged scales which distinguish it having a low median ridge which projects slightly over the loreal region; superciliary ridge distinctly continuous with the scales of the canthus, composed of one very elongate and sharply keeled scale followed by a double row of small but differentiated tubercular scales, the anterior of which are separated from the supraocular disk by four or five rows of granules; loreal rows four; scales of the subocular semicircle keeled, almost completely separated from the upper labials by a nearly continuous row of small scales; supralabials eight or nine, the last very small and indistinct, the suture between the seventh and eighth coming distinctly below the center of the eye; temporal granules scarcely smaller than the dorsals, with a double series of well-marked, small, rectangular scales forming the supratemporal line; back and sides covered with granules, the dorsals and laterals tubercular, about equal in size; a mid-dorsal area of very slightly enlarged scales; ventrals small, smooth, highly imbricate, hexagonal, their width and length approximately the same; throat covered with small flat granules; forelegs covered with small smooth granules, about four series on the anterior face of the lower arm being considerably enlarged, somewhat larger than the largest ventrals; anterior scales of femur and tibia smooth, similarly enlarged, gradually diminishing posteriorly and below; scales covering hands and feet above enlarged, perfectly smooth; digital expansion moderate, about 16 lamellae under second and third phalanges of fourth toe, about 27 under the whole toe; tail moderate, slightly compressed, with well-marked verticils, every ninth vertical row being somewhat enlarged, the intervening rows consisting of polygonal, nearly smooth scales arranged in about 8 irregular horizontal series, the whole surmounted by a strongly serrated edge of 5 spines, the first two small and inconspicuous, the third and fourth enlarged and pointing diagonally upwards, the fifth equally large but recurved and pointing nearly directly backwards; skin of gular fan naked, closely set with rows of relatively large, flat, semicircular scales which are twice as large as any of the ventrals; edge of fan apparently not thickened posteriorly; post-anal scales well developed; no apparent nuchal fold.

*Dimensions.*—Head and body, 38 mm.; tail (fragmented), 62 mm.; snout to posterior ear, 12 mm.; snout to center of eye, 7 mm.; width of head, 9 mm.; fore leg, 18 mm.; hind leg, 28 mm.

*Color* (in alcohol).—Above olive-gray, lightening on the head, limbs and tail to pearl gray; faint bars of olive-gray across the limbs; a transverse row of four small round black spots at the posterior border of the occipital plate; a faint gray interorbital cross-bar; under surfaces pale olive-gray; scales and skin of gular fan olive buff, with a very fine powdering of gray dots which extends over the ventral scales and the tail.

The type is unique.

**Uromacer wetmorei,** new species.

*Diagnosis.*—Snout two and one-half times as long as eye; rostral as broad as deep; scale rows 17–11 in the male; ventrals 177. Related to *Uromacer frenatus*, but differing from it in scale-count as well as in the exceedingly narrow frontal.

*Type.*—U. S. N. M. No. 83891, an adult male collected on Beata Island, Dominican Republic, on May 13, 1931, by Dr. A. Wetmore and Mr. F. C. Lincoln. Rostral as broad as deep, scarcely visible from above; internasal suture shorter than the prefrontal suture; frontal much shorter than its distance from the rostral, somewhat shorter than the parietals, and widely separated from the preocular; supraocular wider than the frontal; diameter of eye three-eighths the length of the snout; nasal undivided, two-thirds as long as its distance from the eye; loreal small, a little wider than high; one preocular; two postoculars, the lower one very small; temporals 1+2; 8 supralabials, the second in contact with the nasal and prefrontal, barely with the loreal; the third, fourth and fifth supralabials entering the eye; 11 lower abials, the first in contact with its fellow behind the symphysial; both pairs of chin-shields the same in length, the first pair in contact with five and the second with two lower labials; scales smooth, without pores, in 17 rows decreasing to 11 at the beginning of the tail; ventrals 177; anal divided; caudals 179.

*Dimensions.*—Head and body, 620 mm.; tail, 420 mm.; eye diameter, 3.8 mm.; eye to tip of snout, 9.2 mm.

*Coloration* (in alcohol).—Top of head dark Nile blue, merging on the neck with the light drab of the body color; traces of narrow sepia cross-bars separated by the width of one scale on the anterior portion of the body, posteriorly becoming much less obvious, and appearing as sepia patches on the skin and sometimes on the edge of a scale, with a general darkening of the mid-dorsal area with suffusions of light sepia; upper and lower labials and chin pale glaucous green; a narrow black line beginning on the rostral and continuing backwards along the top of the upper labials, sharply separating the dark hue of the top of the head from the pale color of the lips, this line fading out quickly on the neck; ventral surface pinkish buff with a fine uneven powdering of sienna; a sepia spot rarely occurring on the edge or middle of a ventral plate; tail with similar spots occurring more frequently but just as irregularly.

The finding of a representative of the Hispaniolan *Uromacer frenatus* on an outlying island was to be expected, since *catesbyi* had given rise to *scandax* on Tortuga Island, and *oxyrhynchus* to *dorsalis* on Gonave Island.

**Leimadophis parvifrons lincolni,** new subspecies.

*Diagnosis.*—Frontal and supraocular plates equal in width measured across the center; internasals as long as the prefrontals; snout relatively long and narrow in front of eyes; dorsal black stripe only 3 scales in width; light lateral stripe on side of neck appearing broken into spots by the invasion of the sinuous black lateral stripe.

*Type.*—U. S. N. M. No. 83890, an adult from Beata Island, Dominican

Republic, collected on May 15, 1931, by Dr. A. Wetmore and Mr. F. C. Lincoln. Rostral broader than deep; internasals as long as prefrontals; length of frontal one and one-fifth times its distance from the end of the snout, a little shorter than the parietals, separated from the preocular; supraocular only slightly narrower than the anterior portion of the frontal and equal to its width taken through the middle; nasal divided, a little longer than its distance from the eye; loreal moderate in size, squarish, a little broader than deep; one preocular; 2 postoculars, the upper slightly the larger; one anterior temporal followed by three smaller ones on the right (apparently normal) side of the head; the left side with 2+2 rather irregular temporal series; eight upper labials, the second in contact with the posterior nasal and loreal but not reaching the preocular, the third, fourth and fifth entering the eye; ten lower labials, five in contact with the anterior chin-shields and two with the posterior ones, which are slightly longer than the anterior; scales in 19 rows, without pores; ventrals 163; anal divided; caudals 128 with a considerable portion of the tail-tip missing.

*Color* (in alcohol).—Top of head olive, this tone shading gradually into a wide black dorsal stripe; a light area beginning on the canthus, widening on the supraocular and continuing for about three head-lengths along the body on the seventh and eighth scale-rows before it merges with the black uniform color of the body; a distinct black band beginning at the tip of the snout and continuing backwards as a sharp defining border to the light area as far as the occipital region; posterior to this region the black band undulates so that the light area is alternately narrow and wide, giving the appearance of light spots indistinctly fused; upper labials and chin vinaceous-buff, sharply contrasted to the dark lateral stripe on the head but becoming darker on the throat and finally turning to dull china blue mottled with dark plumbeous gray on the belly; the light tone extends on the side of the neck up to the middle of the fourth scale-row, but very shortly the dark plumbeous hue obscures its limits entirely, so that the ventral coloration seems to merge gradually with the uniform black of the dorsal tone; the anal plates and some of the preanal gastrosteges are largely vinaceous-buff, and the subcaudals show more of this color towards the tip of the tail, as the plumbeous clouding ceases.

*Dimensions.*—Head and body, 507 mm.; tail (defective), 350 mm.

This subspecies is recognizable at a glance, for it is the only one that shows any indication of spots taking the place of stripes. Its snout is relatively longer than in any other subspecies of *Leimadophis parvifrons* as evidenced by the nearly equal internasal and prefrontal lengths and the very narrow frontal. In the narrowness of the black dorsal stripe the new subspecies is closest to *tortuganus* from Tortuga Island, which has a width of four scales on the neck widening to five further back. The new subspecies is one in which differentiation has proceeded furthest from the original stock exemplified by *Leimadophis parvifrons parvifrons* from western Haiti.

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# THREE APPARENTLY UNDESCRIBED OWLS.

BY LOUIS B. BISHOP.

The three forms of North American owls described below seem to differ sufficiently from those already recognized to deserve recognition in nomenclature. Of none of them have I sufficient material to indicate the habitats except as given.

**Bubo virginianus leucomelas,** subsp. nov.

BLACK AND WHITE HORNED OWL.

*Type.*—Female adult; no. 40467, collection of Louis B. Bishop; Gordon Head, Victoria, British Columbia, January 19, 1927; P. W. Tow, collector.

*Subspecific characters.*—Similar to *B. v. lagophonus*, but with the ochraceous replaced by grayish white throughout the plumage, except for a little pale ochraceous in the interscapular region. Though collected in the breeding range of *B. v. saturatus* its relationship is nearer *lagophonus*, as it replaces the sooty black of the former with the more grayish black of the latter—almost Ridgway's "blackish brown (2)." The abdomen is more distinctly barred than in either of these races and the pale markings are more profuse above. The tarsi and toes are heavily spotted and barred with black on a grayish white ground.

*Range.*—Occasional in winter in the vicinity of Victoria, B. C., and a typical specimen said to have been taken near Seattle, Wash.

*Remarks.*—When I was in Victoria in the summer of 1926, I asked the taxidermists there, Messrs. P. W. Tow and T. Wherry, to send me a number of Horned Owls. Mr. Tow sent me six during the winter and spring of 1927, of which four were evidently *saturatus*, one *subarcticua*, and one—the type of *leucomelas*—so noticeably different from any race of Horned Owl that I knew that I wrote him at once to send me more. In January, 1928, seven more were received from him, all, like the others, shot within a few miles of Victoria in the fall of 1927, and brought in to him. Of these birds three were *lagophonus*, two *saturatus*, one nearest to *subarcticus* and one, a male, taken also at Gordon Head, closely resembled my unidentified bird. My first impression was that this was a local race, replacing *saturatus* in the immediate vicinity of Victoria, but a specimen taken at Duncan, about 30 miles from Victoria, on June 19, 1929 (43696), and kindly procured for me

by Captain G. Sprot, is normal *saturatus*. While at the Museum of the University of Washington in the fall of 1929, I noticed a mounted Horned Owl just like the type of *leucomelas*, which I understood Professor Hall to say was taken near Seattle.

When in Victoria in the summers of 1929 and 1930, I noticed in the taxidermy shops of Tow and Wherry eight mounted Horned Owls, which showed no resemblance to either *saturatus* or *lagophonus*, but ranged between my strange birds and *subarcticus*. Selecting four of these birds,—specimens that were the lightest and the darkest,—I found that one was almost a duplicate of the type of *leucomelas*, and that the others, taken in conjunction with others that had been sent, range in unbroken order to typical *subarcticus*. Thus the type and a male of the winter of 1927–8 (45266) are typical *leucomelas*; Nos. 42000–1, taken at Gordon Head in November, 1927, are similar, but with a slight increase of ochraceous tints and decrease of the black; 45267, winter of 1927–8, near Victoria, is about half way to *subarcticus*, and thus practically *occidentalis* in color; 40466, Jordan River, Feb. 5, 1927, and 45265, Mechosin, December, 1927, are very close to *subarcticus;* and 45264, Esquimalt, Dec. 2, 192(7 ?), is typical of this race. In these birds also the tarsi and toes range from the heavily spotted ones of *leucomelas* to the white, unspotted of *subarcticus*.

These facts would indicate that *leucomelas* is a form of very limited distribution, and probably breeds east of the coast range in northern British Columbia, near where the ranges of *lagophonus* and *subarcticus* approximate.

**Strix varia brunnescens,** subsp. nov.

MINNESOTA BARRED OWL.

*Type.*—Adult female; no. 44772, collection of Louis B. Bishop; Lake of the Woods Co., Minnesota, January 4, 1930; no. 879 of P. O. Stryklund (Strickland), collector.

*Subspecific characters.*—Similar to *Strix varia varia*, but darker, with the light and dark areas more contrasted; the ochraceous lacking in the pale portions of the plumage both above and below, these markings being almost pure white, and the brown more sooty—about the shade of the brownish black of an immature Snowy Owl, that of the crown and back about the "bone brown" of Ridgway.

*Range.*—Northwestern Minnesota, and probably northward and westward.

*Remarks.*—Among a number of owls of different species sent me by Mr. P. O. Fryklund, who had collected them in Roseau Co., Minnesota, or vicinity, was a Barred Owl, which was so different from this species from other portions of its range that I asked him to send me more. Eight birds now in my collection, all except the type from Roseau Co., differ so unanimously from *varia* from Connecticut, Georgia, Iowa and Arkansas, and are so homogeneous in color, that the recognition of a new race seems imperative. They were collected during the months of January, March, May, October and December, and only one—a female, Morland, Jan. 25, 1926, shows any approach to the brown of *varia*. As browns are known to fade

badly, my first belief was my skins of *varia* might once have been the deep brown of these birds, but freshly collected birds from Arkansas and Georgia, proved this wrong, as they are indistinguishable from birds taken many years earlier.

**Strix varia albescens,** subsp. nov.

QUEBEC BARRED OWL.

*Type.*—Adult female; no. 40626, collection of Louis B. Bishop; Atelante, Quebec, September 10, 1926; no. 1105 of Mr. and Mrs. Gus Langelier, collectors.

*Subspecific characters.*—Similar to *Strix varia varia*, but much paler throughout, with the pale bars broader and whiter both above and below, and the brown central markings below narrower and the white margins broader and paler; the brown both above and below is paler, more grayish, approaching drab, while the brown of *varia* from different portions of its range varies from cinnamon brown to warm sepia. While in *brunnescens* the pale parts of the plumage are grayish white, in *albescens* they show still the tendency to pale ochraceous so marked in *varia*.

*Range.*—Quebec, occasionally south in winter to Connecticut.

*Remarks.*—In the fall of 1882, the first year of my doing any extensive collecting, there was a flight of Barred Owls in southern Connecticut, and I collected a male at Guilford, December 2 (123), bought a female at a restaurant in New Haven, November 20 (121), and shot another male in East Haven on March 3, 1883 (133). In later years, as my collection grew, I often wondered at the extreme pallor of these three birds, but it was not until Mr. Langelier sent me two from Quebec—a male taken also at Atelante, April 5, 1926—that I understood the explanation—they were representatives of this northern, so far unrecognized race. The type is the palest of the four, but the others differ in the same manner, though to a less degree, from *varia* from different portions of its range.

This new race closely resembles *Strix v. albogilva* of central Texas, but the toes are feathered to the nails, the brown above is paler and the white bars broader, and the pale portions of the plumage below are more buffy.

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# SEXUAL DICHROMATISM IN THE PYGMY OWL.

BY LOUIS B. BISHOP.

That the typical race of the Pygmy Owl (*Glaucidium gnoma gnoma*) has two color phases—one "grayish brown" and the other "rufescent," Mr. Ridgway has shown in his "Birds of North and Middle America," and also that these colors are apparently partly geographical, but I am not aware the same condition has been found in any of the races occurring north of Mexico. Specimens that have recently reached me would indicate this condition is also present in the races known as *californicum* and *pinicola*, that it is partly at least geographical, and, strangest of all, sexual.

Of the six Pygmy Owls of this species I have from the Mountain States, exclusive of Idaho, three males from Arizona and New Mexico are the grayish brown of *pinicola*, while three females from Colorado and Montana closely approach the brown of *californicum*. One male and three females from California and Oregon, south and east of the coastal belt, are the deep broccoli brown of *californicum*. Twenty—eight males and twelve females—from northwestern California, western Oregon, southwestern British Columbia and southeastern Alaska are the Verona brown of *grinnelli*, and three *swarthi* from the neighborhood of Victoria—one male and two unsexed—are still darker brown. Eight birds—five males and three females—sent me some years ago from Okanagan, B. C., by Mr. J. A. Munro were pronounced *californicum* by Dr. Oberholser, but examination in the present connection shows the males average grayer than the females.

Two birds sent me in 1926, and both collected near Okanagan in October, were most puzzling, as the male was as gray as *pinicola* from New Mexico and the female as brown as my California examples of *californicum*. This I dismissed as one of the many cases in which subspecies meet and each preserves its subspecific characters—a matter too complicated to discuss here; but the recent receipt of a series of twenty-three Pygmy Owls—nineteen males and four females—from northern Idaho, collected by Mr.

Charles F. Hedges, chiefly in the vicinity of Chief Lake, and all but one between the end of July and the beginning of December, and thus in fresh fall plumage, gave a different aspect to the case. Eighteen males and one female were indistinguishable from *pinicola*—gray birds, one male taken October 31, even grayer than the New Mexico bird, while one male and three females were typical *californicum*. In three birds from southern California in the Los Angeles Museum I find a female from Pasadena and an unsexed bird (female from size) from the San Bernardino Mountains agree in color with *californicum*, while the single male in very worn plumage from the Piute Mountains in September agrees with the gray Idaho males in the color of the tail.

This great preponderance of gray males and brown females, found where the two supposed races meet from southern British Columbia and northern Idaho to southern California, can not be dismissed as simply the occupation by two races of the same area, or as the result of hybridization of independent species, as neither of these would explain the colors being sexually linked. Therefore sexual dichromatism along the line where the two forms meet seems the only refuge, with the result that all the Pygmy Owls of this vast region must be called *californicum*, having a gray and a brown phase, the former chiefly in the southern Rocky Mountains, and the latter where its range approaches that of *grinnelli*.

Intergrades in color do not occur in my series from northern Idaho, but, thanks to Mr. van Rossem, I have seen since writing the above a series of thirty-three in the collection of Mr. Dickey collected also by Mr. Hedges at the same season as my birds. The two lots are probably an unrivalled series of Pygmy Owls from one locality. Mr. Dickey's birds, though largely intermediate in color, show as a whole the same grayness of males and brownness of females.

Finally, conclusive evidence of the subspecific identity of *pinicola* with *californicum* has just reached me from Mr. van Rossem with permission to incorporate his proof in this paper. While collecting this spring in southern Arizona, he writes under date of June 20, "I took a breeding pair (with eggs) in the Ataseo Mountains, Santa Cruz County, the male of which is typical gray "*pinicola*," and the female a fawn-colored *californicum* which is absolutely identical with Sierra Nevada and northern Rocky Mountain birds."

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# THE BLACK-TAILED GNATCATCHER OF MIDDLE LOWER CALIFORNIA; A CORRECTION

BY A. J. VAN ROSSEM.

Dr. C. E. Hellmayr has called to my attention the fact that in designating the black-tailed gnatcatcher occupying the middle portion of the peninsula of Lower California *Polioptila melanura nelsoni* (see Condor, 33, January, 1931, 36) I overlooked the prior *Polioptila nelsoni* of Ridgway, 1903. This inexcusable *lapsus* makes a new name necessary for the form in question and I therefore substitute **Polioptila melanura pontilis,** nom. nov., to replace *Polioptila melanura nelsoni* which is, as above stated, preoccupied.

[1]Contribution from the California Institute of Technology.

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# THE LEMMING OF NUNIVAK ISLAND, ALASKA.

BY HARRY S. SWARTH.

During the summer and fall of 1927 Mr. C. G. Harrold was occupied collecting birds and mammals in Alaska for the California Academy of Sciences, mostly upon Nunivak Island. A series of *Lemmus* that he obtained upon that island appears to represent an unnamed form. This may be designated

**Lemmus harroldi,**[1] new species.

*Type.*—Male adult, skin and skull, no. 6294, Mus. Calif. Acad. Sci.; collected by C. G. Harrold (orig. no. 244); Nunivak Island, Alaska; July 14, 1927. Measurements of type: Total length, 156.0; tail vertebræ, 15.0; hind foot, 21.0.

*Diagnosis.*—A lemming of the group that is otherwise represented in Alaska by the described forms *alascensis* (Point Barrow), *yukonensis* (Charlie Creek, Yukon River), *minusculus* (Kakhtul River, Alaska Peninsula), and *nigripes* (St. George Island, Pribilof Group). Coloration dull blackish brown, with slight suggestion of the bright ruddy hue of *alascensis* and *yukonensis;* similar to the color of *nigripes.* Skull smaller than in *alascensis,* but more massive than in *yukonensis* and *nigripes.* Audital bullæ larger than in *nigripes,* as is the case in the mainland forms; not quite as large as in *yukonensis.*

*Remarks.*—The several Alaskan forms of *Lemmus* will probably turn out to be only subspecifically separable, but until sufficient material and data are gathered to prove this supposition the Nunivak Island Lemming may be accorded specific standing with the rest. It is in general terms similar to the Pribilof Island *nigripes* in coloration, like the mainland animals in skull characters. The following specimens have been available for comparisons:

*Lemmus harroldi.* California Academy of Sciences collection, 11 skins with skulls, 1 dessicated carcass, entire.

*Lemmus nigripes.* California Academy of Sciences collection, 8 skins with skulls; 3, skins only; 2, skulls only.

*Lemmus alascensis.* California Academy of Sciences collection, 2 skins only. Biological Survey collection, 5 skins with skulls.

[1] Named in memory of the collector of the type series, the late Cyril Guy Harrold, a gifted naturalist and a remarkably able collector.

*Lemmus yukonensis.* Biological Survey collection, 5 skins with skulls.

In the lack of a revisionary study of the genus, the original descriptions of the various species remain our main source of published information, and the several small series before me show certain disagreements with those descriptions. The principal discrepancy lies in the characterization of *alascensis* as of small size, whereas it appears to be the largest of the Alaskan forms. This seems evident, both from externals and from the skulls, but unfortunately collectors' measurements can not be tabulated to show the differences. Measurements by different individuals, by different methods, and with a proportion of evident mistakes, are factors that debar comparisons. The four Alaskan forms of *Lemmus* before me present the following characteristics:

*Lemmus alascensis.* Size large; skull large and massive; coloration bright ruddy.

*Lemmus yukonensis.* Size small; skull small but audital bullæ large in proportion, as compared with *alascensis*; coloration bright ruddy.

*Lemmus nigripes.* Size small; skull small with small audital bullæ; coloration dark brown.

*Lemmus harroldi.* Size larger, nearly as in *alascensis*, and skull most nearly as in that form. Coloration dark brown.

The above color comparisons are between specimens taken at the same season and presumably in comparable condition. In the Nunivak Island series there is a mummified specimen, a "pick-up," that is more ruddy than the rest and may represent winter conditions. In the Pribilof Island series two skins collected in February are more ruddy than the others, taken from June to August. I have not seen *Lemmus minusculus* Osgood. In the description thereof comparisons are all made with *alascensis*, and it is not apparent how *minusculus* and *yukonensis* are to be distinguished.

Measurements of Skulls.

| Museum | No. | Sex | | Length | Width across bullæ | Spread of maxillary arches |
|---|---|---|---|---|---|---|
| Biol. Surv. | 107677 | ♂ | Lemmus alascensis | 31.0 | 15.5 | 21.5 |
| Biol. Surv. | 107689 | ♂ | Lemmus alascensis | 32.5 | 16.2 | 22.8 |
| Biol. Surv. | 107720 | ♂ | Lemmus alascensis | 33.5 | 16.5 | 23.2 |
| Biol. Surv. | 107688 | ♀ | Lemmus alascensis | 36.0 | 16.2 | 23.5 |
| Biol. Surv. | 107710 | ♀ | Lemmus alascensis | 32.0 | 15.8 | 21.2 |
| Biol. Surv. | 159085 | ♂ | Lemmus yukonensis | 30.0 | 15.0 | ..... |
| Biol. Surv. | 159086 | ♂ | Lemmus yukonensis | 29.0 | 14.2 | 19.0 |
| Biol. Surv. | 159101 | ♂ | Lemmus yukonensis | 31.0 | 15.0 | 20.0 |
| Biol. Surv. | 159089 | ♀ | Lemmus yukonensis | 28.0 | 14.8 | 18.2 |
| Biol. Surv. | 159096 | ♀ | Lemmus yukonensis | 28.5 | 15.0 | 18.5 |
| C. A. S. | 6294 | ♂ | Lemmus harroldi | 33.5 | 16.2 | 22.0 |
| C. A. S. | 6296 | ♂ | Lemmus harroldi | ..... | ..... | 21.0 |
| C. A. S. | 6295 | ♀ | Lemmus harroldi | 32.0 | 15.2 | 20.5 |
| C. A. S. | 6297 | ♀ | Lemmus harroldi | 31.8 | 15.0 | 21.0 |
| C. A. S. | 2843 | ♀ | Lemmus nigripes | 31.5 | 16.0 | 20.5 |
| C. A. S. | 2846 | — | Lemmus nigripes | 29.0 | 15.0 | 19.0 |
| C. A. S. | 2847 | ♂ | Lemmus nigripes | 30.0 | 15.2 | 19.0 |
| C. A. S. | 2851 | ♂ | Lemmus nigripes | 28.5 | 14.0 | 18.5 |

I am indebted to the authorities of the Bureau of Biological Survey, United States Department of Agriculture, for the loan of series of *Lemmus alascensis* and *Lemmus yukonensis*.

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# A NEW POCKET GOPHER OF THE GENUS ORTHOGEOMYS FROM GUATEMALA.

BY E. W. NELSON AND E. A. GOLDMAN.

In reviewing the pocket gophers of the genus *Orthogeomys* the authors (Journ. Mamm., vol. 11, no. 2, p. 156, May, 1930) assumed that six specimens from Volcan Santa Maria, Guatemala, were near typical *O. grandis*, owing largely to the proximity of Dueñas, the type locality. It was recalled, however, that the examples were from a considerably higher altitude, 9,000 feet, on the upper slopes of the volcano and, moreover, did not agree very well with the original description of the type. Recent direct comparison of specimens with the type, and carefully prepared notes by Dr. Remington Kellogg, together with cranial photographs of the type in the British Museum kindly furnished by Mr. M. A. C. Hinton, indicate characters that are quite distinctive.

**Orthogeomys grandis vulcani,** subsp. nov.

VOLCANO POCKET GOPHER.

*Type.*—From Volcan Santa Maria, Quezaltenango, Guatemala (altitude 9,000 feet). No. 76745, ♂ adult, U. S. National Museum (Biological Survey collection), collected by Nelson and Goldman, January 28, 1896. Original number 9243.

*Distribution.*—Known only from the type locality.

*General characters.*—A high mountain form with soft, dense pelage remarkably long (54 mm. in type) on sides of rump, and tending to form conspicuous tufts in the unworn coat of adults. Similar in general to *Orthogeomys grandis grandis*, from Dueñas, Guatemala, but pelage much denser, softer and finer; skull less massive and differing in detail. Approaching *O. g. scalops* in size but color darker, pelage much less hispid, and cranial characters very distinctive. Differing decidedly from and requiring no close comparison with *O. g. latifrons*, *O. pygacanthus*, and *O. cuniculus*, all of which are smaller with much coarser pelage.

*Color.—Type:* Upper parts and outer surfaces of forearms and hind legs near Mars brown of Ridgway, a few grayish hairs underlying the long pelage on rump; under parts very similar but somewhat lighter in tone, especially

on cheeks, chin, throat, and inner surfaces of forearms; feet thinly clothed with a mixture of brownish and grayish hairs; tail naked, the smooth dry skin blackish. Two other adults more distinctly grayish or whitish on face and on fore and hind limbs. *Young* (about half grown): Pelage still softer and upper parts somewhat darker, nearer Vandyke brown, than in adults.

*Skull.*—Similar to that of *O. g. grandis*, but narrower and less massive; nasals narrower, more tapering posteriorly; zygomata less widely and squarely spreading anteriorly, the outer angles less broadly expanded; premaxillae less prolonged posteriorly, scarcely reaching anterior plane of orbit; interorbital region more constricted, the frontals distinctly notched near fronto-parietal suture; frontal region high and inflated anteriorly near lachrymals, much as in *grandis;* dentition similar, but less heavy. Compared with that of *O. g. scalops* the skull is higher, the sides of frontals more inflated upward near lachrymals (upper outline more nearly straight in *scalops*); lambdoid crest more sinuous; maxillary arm of zygoma and jugal decidedly narrower, less expanded at point of union, the lateral angle less projecting; pterygoids broader; auditory bullae much more rounded and inflated, less tapering anteriorly; dentition about the same.

*Measurements.—Type:* Total length, 367 mm.; tail vertebrae, 103; hind foot, 52. An adult male topotype: 392; 122; 53. Two adult female topotypes, respectively: 370, 390; 110, 121; 52, 55. *Skull* (type): Condylobasal length, 68.1; zygomatic breadth (anteriorly), 39; greatest breadth across squamosals, 41.9; interorbital constriction, 12.8; length of nasals, 26.4; alveolar length of upper molariform toothrow, 15.5.

*Remarks.*—Like some other high mountain forms of the genus *O. g. vulcani* is characterized by soft, dense pelage. Among the known members of the genus it is approached in this character only by the geographically remote *O. g. felipensis*, from 10,000 feet on the mountains of central Oaxaca, Mexico. It differs notably, however, from that form in the lengthened pelage on the rump, and in important cranial details.

At the time of our visit to the volcano of Santa Maria in 1896 it had been quiescent for so long a period that the slopes were well covered with large coniferous and oak forest trees and other vegetation to near the summit. The violent eruption of October, 1902, reported to have destroyed the summit of the mountain and to have buried coffee plantations on the western base deep in ashes must have been disastrous in its effect upon the native fauna and flora and may have extinguished local colonies of such rodents as the one here described.

To the list of forms published (l. c.) there has already been added (Journ. Mamm., vol. 11, no. 3, p. 317, August, 1930) *Orthogeomys cuniculus* Elliot, from Zanatepec, Oaxaca, Mexico. A further addition should include *Orthogeomys pygacanthus* Dickey, from 3,500 feet on Mount Cacaguatique, Department of San Miguel, Salvador. The type and three topotypes of this rather small form have been examined by us. Our conclusion is that while close relationship to neighboring subspecies of *O. grandis* seems evident it may be better to treat *pygacanthus* as a separate species until more material is available and the various forms inhabiting that diversified region are better known.

*Specimens examined.*—Six, all from the type locality.

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# TWO NEW WOODRATS FROM LOWER CALIFORNIA

BY E. W. NELSON AND E. A. GOLDMAN.

Re-examination of the woodrats of Lower California has led to the conclusion that two hitherto unrecognized forms require distinctive names. They are described as follows:

**Neotoma intermedia ravida,** subsp. nov.

LAVA WOOD RAT.

*Type.*—From Comondú, southern Lower California, Mexico (altitude 700 feet). No. 140692, adult male, U. S. National Museum (Biological Survey collection), collected by Nelson and Goldman, November 7, 1905. Original number 18476.

*Distribution.*—Volcanic region, including extensive lava beds, along the backbone of the peninsula of Lower California, from about latitude 28 degrees, south to the Sierra de la Giganta.

*General characters.*—Similar to *Neotoma intermedia intermedia,* but upper parts more heavily and uniformly overlaid with black; under parts whiter, less pinkish buffy across abdomen; pelage shorter, the epidermal scales showing through on tail; tail less sharply bicolor, tending to become dusky all around near tip; ears larger; skull differing in detail. Similar in size to *N. i. gilva,* but contrasting strongly in much darker color. Size much smaller and color much darker than *N. i. pretiosa,* or *N. i. arenacea.*

*Color.—Type:* Upper parts light vinaceous buffy, heavily and rather uniformly mixed or overlaid with black, producing a very dark general effect; under parts in general washed with nearly pure white, the under color everywhere plumbeous to roots of hairs; a pinkish buffy band across lower part of neck; feet white; ankles blackish; tail thinly haired, blackish above, dull grayish or brownish below, the line of demarcation indistinct.

*Skull.*—Very similar in size and general form to that of *N. i. intermedia,* but lighter in structure; zygomata more slender; interpterygoid fossa usually broader; auditory bullae averaging slightly larger; dentition about the same. Compared with those of *N. i. pretiosa* and *N. i. arenacea,* the skull is much smaller and of lighter proportions.

*Measurements.—Type:* Total length, 343 mm.; tail vertebrae, 172; hind foot, 34. Average of three adult topotypes: 328 (324–334); 154 (152–157);

35 (33.5–36). *Skull* (type): Greatest length, 41.5; condylobasal length, 39.5; zygomatic breadth, 21.6; interorbital breadth, 5.4; alveolar length of upper molar series, 8.

*Remarks.*—Our studies indicate that the range of *N. i. intermedia* does not extend so far south in Lower California as formerly assumed. The paler specimens from the desert central section of the peninsula are more properly assignable to *N. i. gilva*, while those from the rugged volcanic region along the backbone of the peninsula from near latitude 28 degrees south to the Sierra de la Giganta represent the dark form here described. As in some other regions dark color is definitely associated with that of the lava fields inhabited. Specimens of *N. i. ravida* from the lava near San Ignacio contrast strongly with those of *N. i. gilva* from whitish sand at San Angel, in the Vizcaino Desert about 20 miles to the west.

*Specimens examined.*—Total number 27, from Lower California, as follows: Aguaje de la Natividad (25 miles northwest of San Ignacio), 1; Comondú (type locality), 15; El Potrero (near Mulege), 2; Paso Hondo (16 miles north of La Purisima), 1; San Ignacio, 7; Sierra de la Giganta, 1.

**Neotoma intermedia notia,** subsp. nov.

CAPE MOUNTAIN WOOD RAT

*Type.*—From La Laguna, Sierra de la Victoria, southern Lower California, Mexico (altitude 5500 feet). No. 146794, adult male, U. S. National Museum (Biological Survey collection), collected by Nelson and Goldman, January 27, 1906. Original number 19017.

*Distribution*—Known only from the mountains of the Cape region of Lower California.

*General characters.*—Most closely allied to *Neotoma intermedia arenacea* of the neighboring lowlands, but much smaller with skull differing in detail. Similar in size to *N. i. intermedia*, but more cinnamon buffy and cranial characters quite distinctive.

*Color.—Type:* Upper parts near cinnamon buff (Ridgway, 1912), purest on cheeks and along sides, moderately darkened over top of head and back by overlying dusky hairs; under parts overspread with white, the basal color plumbeous; feet white; ankles brownish; tail thinly haired, indistinctly bicolor, dark brownish above, dull grayish below.

*Skull.*—Similar in general form to that of *N. i. arenacea*, but much smaller; rostrum shorter; frontal region flatter, the supraorbital ridges less upturned; auditory bullae small and dentition rather heavy much as in *arenacea*. Compared with that of *N. i. intermedia*, the skull is similar in size, but the zygomata are decidedly heavier, more widely bowed outward posteriorly; interpterygoid fossa broader; dentition heavier.

*Measurements.—Type:* Total length, 325; tail vertebrae, 150; hind foot, 37. Average of five adult topotypes, 321 (310–330); 151 (145–157); 35 (33–39). *Skull* (type): Greatest length, 43.3; condylobasal length, 40.8; zygomatic breadth, 22.2; interorbital breadth, 5.5; alveolar length of upper molar series, 8.7

*Remarks.*—In "Revision of the Wood Rats of the Genus Neotoma"

(North American Fauna, No. 31, p. 44, October 19, 1910) Goldman pointed out certain characters possessed by animals from the mountains of the Cape Region of Lower California, but remarked: "These differences seem too slight for subspecific recognition, although the specimens appear to represent an isolated colony, cut off from the main distribution area of *intermedia* by an interposed arm of the range of the larger and paler form, *arenacea*." A review of the material reveals differential characters that warrant the treatment here accorded this form. *N. i. notia* appears to be limited to the upper slopes of the mountains, largely in the Upper Sonoran life zone, doubtless intergradng with the strikingly larger form *arenacea*, which inhabits the Lower Sonoran basal slopes and tropical or sub-tropical coastal plains and valleys from La Paz to Cape San Lucas.

*Specimens examined.*—Total number 15, from Lower California, as follows: La Laguna, Sierra de la Victoria (type locality), 8; Mount Miraflores, 2; Victoria Mountains, 5.

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# PLANTS RECENTLY DISCOVERED ON PLUMMERS ISLAND AS A RESULT OF LOW-WATER CONDITIONS.[1]

BY ELLSWORTH P. KILLIP.

The low water in the Potomac River during the summer and fall of 1930 resulted in the discovery of a number of aquatic and strand plants not previously recorded from Plummers Island. Large sandbars were built up at both ends of the island, and upon these and in the small pools shut off from the main river there appeared these newcomers—new, at least, from the standpoint of not having been observed before.

Plummers Island is situated in the Potomac River, about ten miles above Washington, and this, with the near-by Maryland shore in the vicinity of Seven Locks, Montgomery County, Maryland, constitutes the property of the Washington Biologists Field Club. Ever since its acquisition in 1901 an intensive study of the flora and fauna has been made by the members. Nearly 700 species and subspecies of flowering plants have been reported, and the greater part of these are represented by specimens in the club's herbarium. Although no list of the plants has yet been published, it seems worth while to note the recent discoveries that have resulted from last year's low water. Of the 37 species mentioned below, 21 are strictly new to the island, one of them, *Paspalum repens*, being new also to the area covered by the Flora of the District of Columbia and vicinity.[2] A few species are included which, though reported once or twice before from the island, had become fairly well established on the sandbars by the end of last autumn.

[1]Published by permission of the Secretary of the Smithsonian Institution.
[2]Contr. U. S. Nat. Herb., vol. 21. 1919.

POTAMOGETONACEAE. Pondweed family.

**Potamogeton crispus** L.

In deep pools at both ends of island. Aug. 24.[1] New record.

**Potamogeton foliosus** Raf.

Common in shallow pools. Aug. 24. New record.

NAIADACEAE.

**Naias flexilis** (Willd.) Rostk. & Schmidt. Bushy pondweed.

Common in pools. Sept. 9. Previously reported by McAtee from the channel.

ALISMACEAE.

**Alisma subcordatum** Raf. Waterplantain.

A few plants growing in mud at either end of island. Sept. 28. New record.

**Lophotocarpus calycinus** (Engelm.) J. G. Smith.

In deep pool just off west end of island. Sept. 28. New record; hitherto known positively within our area from a single specimen collected by E. S. Steele in the Eastern Branch, though reported as growing "below Alexandria."

**Sagittaria latifolia** Willd. Arrowhead.

Common in pools and on nearby grassy shores. Sept. 28. New record. Forms with both narrow- and broad-lobed leaves were found.

**Sagittaria pubescens** Muhl.

A few plants in pool at west end. Sept. 28. New record.

**Sagittaria rigida** Pursh.

Two plants in a pool at east end. Oct. 5. New record.

VALLISNERIACEAE.

**Elodea occidentalis** (Pursh) St. John.

In pool at west end. Aug. 24. New record. (*Anacharis canadensis*, in part, of Flora of the District of Columbia.)

**Vallisneria spiralis** L. Wild celery.

Three plants in a pool at west end. Aug. 24. New record.

POACEAE. Grass family.

**Paspalum repens** Berg.

Sandbar toward west end. Sept. 28. New record for District Flora.

**Panicum dichotomiflorum** Michx.

Sandbar at east end. Sept. 7. Collected previously on island by Hitchcock.

[1]Date upon which the species was first observed and collected. Unless otherwise stated, observations were made by the writer.

**Panicum gattingeri** Nash.

On shore near east end. *S. F. Blake*, Nov. 2. Collected previously by Hitchcock.

**Cenchrus pauciflorus** Benth.

On sandbar at west end. Sept. 28. New record.

**Homalocenchrus oryzoides** (L.) Poll.

On sandbar at west end. Sept. 8. Collected previously by Hitchcock.

**Muhlenbergia mexicana** (L.) Trin.

Common on sandbars at both ends. Sept. 28. Collected previously by Hitchcock.

**Eleusine indica** (L.) Gaertn.

On shore near east end. *S. F. Blake*, Nov. 11. Previously reported from island but not represented by a collection.

CYPERACEAE. Sedge family.

**Cyperus aristatus** Rottb.

A few plants on sandbar at west end. Sept. 8. New record.

**Cyperus erythrorhizos** Muhl.

Marshy shore of sandbar at east end. Sept. 28. New record.

**Cyperus ovularis** (Michx.) Torr.

On shore near east end. *S. F. Blake*, Nov. 11. New record.

Three other species of *Cyperus, C. diandrus, C. esculentus, and C. strigosus*, previously reported from the island, were common on these sandbars.

**Eleocharis obtusa** (Willd.) Schult.

Several plants in mud along sandbar at east end. Sept. 6. Collected previously by Hitchcock.

PONTEDERIACEAE. Pickerelweed family.

**Heteranthera dubia** (Jacq.) MacM. Water stargrass.

Frequent in shallow pools and at their margins. Sept. 8. A striking plant with bright yellow flowers, in shallow pools and on muddy flats as the water receded. Previously reported from the channel by Maxon and McAtee.

IRIDACEAE. Iris family.

**Iris versicolor** L. Blueflag Iris.

A single plant on the east sandbar. Reported earlier but not represented in the herbarium.

CHENOPODIACEAE. Goosefoot family.

**Chenopodium ambrosioides** L. Wormseed.

A single plant on the east sandbar. Sept. 28. Reported earlier but not represented in the herbarium.

AMARANTHACEAE. Amaranth family.

**Amaranthus graecizans** L.

A few plants on the east sandbar. Sept. 8. New record.

**Amaranthus spinosus** L.

Common on the east sandbar. Sept. 21. New record.

PORTULACACEAE. Purslane family.

**Portulaca oleracea** L. Purslane.

A few plants on both sandbars. Sept. 8. Collected previously by Hitchcock.

EUPHORBIACEAE. Spurge family.

**Chamaesyce preslii** (Guss.) Arthur.

A single plant on the west sandbar. Sept. 21. New record.

MALVACEAE. Mallow family.

**Abutilon theophrasti** Medic. Velvetleaf.

A few depauperate plants on both sandbars. Sept. 21. Reported previously but not represented in herbarium.

LYTHRACEAE. Loosestrife family.

**Rotala ramosior** (L.) Koehne.

Several plants on sandbar at west end. Sept. 8. Reported previously but not represented in herbarium.

CONVOLVULACEAE. Morning-glory family.

**Ipomoea lacunosa** L.

Common on sandbar at east end. Sept. 8. Collected earlier by Hitchcock. The plants show much variation in the color of the flowers.

CUSCUTACEAE. Dodder family.

**Cuscuta polygonorum** Engelm. Smartweed dodder

Parasitic on various herbs growing on west sandbar. Oct. 5. New record.

MENTHACEAE. Mint family.

**Perilla frutescens** (L.) Britton.

One large clump in sand at edge of woods near east end of island. Sept. 28. New record.

SCROPHULARIACEAE.

**Ilysanthes dubia** (L.) Barnh.

Common on sandbar at east end. Sept. 21. Collected earlier by Hitchcock.

AMBROSIACEAE. Ragweed family.

**Xanthium chinense** Mill. Cocklebur.

Several plants on west sandbar. Sept. 28. (*Xanthium americanum* of District Flora.[1])

**Xanthium pennsylvanicum** Wallr. Cocklebur.

On sandbars at both ends of island. Sept. 28. (*Xanthium commune* of District Flora, in part.)

ASTERACEAE. Aster family.

**Bidens aristosa** (Michx.) Britton.

A conspicuous plant on the sandbars at both ends of the island. Sept. 8. New record.

**Artemisia annua** L. Annual wormwood.

On shore near east end. *S. F. Blake*, Nov. 2. New record.

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[1]See McAtee and Metcalf, Notes on cockleburs (Ambrosiaceae; *Xanthium*) of the District of Columbia and vicinity. Proc. Biol. Soc. Washington **33**; 177–180. 1920.

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# A WEAVER BIRD NEW TO SCIENCE FROM URUNDI, CENTRAL AFRICA.

BY HERBERT FRIEDMANN.[1]

Among the birds collected in central Africa by Mr. H. C. Raven in 1920 are three adult males and two females of Jackson's weaver, *Ploceus jacksoni*. These were obtained at Nyanza on the northeastern shore of Lake Tanganyika and appear to constitute the westernmost records for the species and the first for the Congo district. They are very distinct from typical *jacksoni* from East Africa and may be known as

**Ploceus jacksoni jucundus,** subsp. nov.

*Type.*—U. S. N. M. 275783, adult male, collected by H. C. Raven, at Nyanza, Lake Tanganyika, Urundi, Belgian Congo (mandate), March 11, 1920.

*Subsp. chars.*—Similar to *P. j. jacksoni*, but with a subdued, interrupted dull chestnut posterior margin to the black of the nape; the yellow of the back paler, the chestnut brown of the breast and abdomen slightly duller, less reddish, the under tail coverts more brownish, less yellowish; the tail feathers much less yellowish, much paler; bill longer, 18 mm. (3 males) as against 16 mm. (4 males) of *jacksoni;* 17 mm. (2 females) as against 15 mm. (2 females) of *jacksoni*.

The color of the rectrices, the presence of a chestnut fringe on the nape, and the paler yellow of the back distinguish this form from the nominate one at a glance. The bill length is also appreciable to the eye. Females of *jucundus* are yellower below than are those of *jacksoni*.

*Range.*—Known only from the type locality. The nominate form has been taken as far west as Buziranjuvo, Kampala, and Entebbe, Uganda, whence it ranges northeast to Turkanaland and Suk, east through Kenya Colony to Kilimanjaro and to Morogoro in Tanganyika Territory. A female from Ujiji on the east shore of Lake Tanganyika is of the nominate race. It would appear from this that *jucundus* has a very restricted range, recalling the case of *Pternistes cranchii harterti*.

[1] Published by permission of the Secretary of the Smithsonian Institution.

*Material examined.—P. j. jacksoni:* 8 adult males, 2 adult females (including some practically topotypical birds from Taveta).

*P. j. jucundus:* 3 adult males, 2 adult females.

I am indebted to Mr. James L. Peters of the Museum of Comparative Zoology for the loan of specimens in the present connection, and to Dr. James P. Chapin for data on material in the American Museum of Natural History.

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# THE NORTHERN FORM OF THE CARDINAL DIOCH, QUELEA CARDINALIS.

BY HERBERT FRIEDMANN.[1]

Among the birds collected by the Childs Frick Expedition to Ethiopia and Kenya Colony are 8 specimens of the cardinal dioch, *Quelea cardinalis*, from the Indunumara Mountains, near the southern end of Lake Rudolf, northern Kenya Colony. Previously the species had been taken at only one locality in northern Kenya Colony, at Marsabit, where van Someren[2] obtained 3 males. The present series constitute a new northern limit for the species in East Africa. The series comprises 6 females, 1 adult male, and 1 immature male; the males are both in the sparrowy, off-season plumage. These eight birds are so strikingly paler than a series from Uganda, southern Kenya Colony, Tanganyika Territory and the north end of Lake Tanganyika that it is advisable to separate them under the name

**Quelea cardinalis pallida,** subsp. nov.

*Type.*—U. S. Nat. Mus. No. 247325, adult female, collected in the Indunumara Mountains, northern Kenya Colony, July 16, 1912, by Edgar A. Mearns.

*Subspecfic characters.*—Similar to *Q. c. cardinalis* but very much paler above, the dark centers of the feathers much narrower and the margins very pale tawny buff, not tawny or yellowish olive brown as in *cardinalis*. Dorsally the females (and off-season males) of the nominate form appear dark fuscous with narrow lighter streaks while those of *pallida* present a buffy aspect with narrow fuscous streaks. The latter race also has a somewhat smaller, weaker bill.

*Range.*—Known definitely only from the Indunumara Mountains. Probably the Marsabit birds are *pallida* as well.

[1]Published by permission of the Secretary of the Smithsonian Institution.

[2]Journ. E. Afr. and Uganda Nat. Hist. Soc., 1930, p. 58.

*Remarks.*—Gyldenstolpe[1] writes that southern Sudanese, Ugandan, and Tanganyikan birds are alike in color, but that Tanganyikan examples are considerably paler on the whole upper parts of the body. It may well be that eastern birds show an approach to *pallida*, as so many Somali types range south in the subcoastal belt to Tanganyika Territory and there spread out to the west. I have seen a female from Kilosa and while it is paler than birds from the north end of Lake Tanganyika and from Uganda, it is much nearer to them than to the very pale north Kenian race. Gyldenstolpe finds Tanganyikan birds to be slightly larger than true *cardinalis*. This I can not uphold as my material shows no such difference. Van Someren[2] writes that Nairobi males have brighter, more richly colored red heads and throats than Ugandan examples. This also I can not corroborate with the material available for study. A breeding male from Nairobi has the head and throat slightly lighter, more scarlet, less crimson, than birds from farther west, but the difference is very small.

*Material examined.*—*Q. cardinalis cardinalis:* 7 males, 10 females.

*Q. cardinalis pallida:* 2 males, 6 females.

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[1]Kungl. Sv. Vet. Akad. Handlngr., 1924, pp. 43–44.

[2]Nov. Zool., vol. 29, 1922, p. 146.

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# A NEW WARBLER FROM HISPANIOLA.

BY ALEXANDER WETMORE AND FREDERICK C. LINCOLN.

In recent collections from the island of Beata and the adjacent coastal region of the Dominican Republic we find an undescribed form of *Microligea* that may be known as

**Microligea palustris vasta,** subsp. nov.

*Characters.*—Similar to *Microligea palustris palustris* (Cory)[1] but decidedly paler both above and below; under surface with white of breast and abdomen more extensive; sides and flanks distinctly lighter; gray of crown and hindneck paler; green of back, rump and wing lighter; slightly smaller.

*Description.*—Type, U. S. Nat. Mus. No. 327859, male adult, collected on Beata Island, D. R., May 13, 1931, by A. Wetmore and F. C. Lincoln (orig. no. 8741). Crown, hind-neck and upper back storm gray; auricular region smoke gray; a white spot on upper and lower eyelids, and a slight mixture of white in lores, producing a faintly indicated streak or line; back, rump, wing coverts and exposed edges of secondaries and inner primaries between mignonette green and Krönberg's green, primaries otherwise dusky, the outer ones edged with olive-gray; exposed webs of rectrices Krönberg's green, hidden portions duller; sides and flanks pale smoke gray, merging into pale olive gray across upper chest, with throat, lower chest, abdomen and under tail coverts whitish; bill dusky mixed with whitish on center of lower mandible; tarsus blackish slate (from dried skin).

*Measurements.*—Males (7 specimens), wing 60.3–66.4 (63.1), tail 51.5–65.0 (59.6), culmen from base 13.9–15.3 (14.5), tarsus 19.5–21.4 (20.6) mm.

Females (10 specimens), wings 56.1–67.8 (60.7), tail 58.0–64.5 (61.0), culmen from base 14.0–15.4 (14.4), tarsus 19.3–21.5 (20.3) mm.

Type, adult male, wing 66.4, tail 63.5, culmen from base 14.0, tarsus 21.0 mm.

*Range.*—Beata Island, and parts of the Barahona Peninsula (specimens seen from Trujín and Habanero), Dominican Republic.

*Remarks.*—The discovery of a form of this bird, which in its typical form, *Microligea palustris palustris*, has been known from areas of heavy rainfall where it inhabits dense rain forest jungle, in the arid scrubs of

[1] *Ligea palustris* Cory, Auk, 1884, p. 1, pl. 1 (col.), 1 fig. (Rivas, D. R.).

Beata Island was a circumstance entirely unexpected, and the paler coloration that characterizes *vasta* is so marked that it was noted instantly in the field when the first specimen came to hand. The birds were common and widely distributed, being found ordinarily in pairs. The series of fourteen collected on Beata was obtained without particular difficulty.

On our return from Beata we were astonished further to obtain two specimens near Habanero in the desert area north of the Río Yaque del Sur, which brought to attention an early record of one skin collected by Dr. W. L. Abbott at Trujín, on the coast south of Enriquillo, February 11, 1922. These three skins are distinctly of the paler coloration that characterizes the bird of Beata, and appear to be within the range of color variation for that race. They are identified at this time as *vasta* with the suggestion that further skins be obtained for comparison when practicable as with extensive material the main island skins might prove separable. It may be noted that the skin from Trujín listed by Wetmore[1] with a series of the typical race is an immature individual with the greenish wash on the fore portion of the body usual in birds in this stage so that because of this masking of the paler markings its differences were entirely overlooked in earlier examination.

[1]U. S. Nat. Mus. Bull. 155, 1931, p. 395.

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# THE ATLANTIC COAST RACES OF THRYOSPIZA MARITIMA (WILSON).

BY HARRY C. OBERHOLSER.

The distribution and relationships of *Thryospiza maritima* on the Atlantic coast of the United States are somewhat puzzling. In attempting to find a satisfactory arrangement, the lack of suitable material has caused geographic differences to be largely overlooked. Furthermore, the range of individual variation in the various forms, as in many other species, often proves to be as great as the difference between subspecies, while, however, the average differential characters are good.

Two races of this species have hitherto been recognized in this region, *Thryospiza maritima maritima* and *Thryospiza maritima macgillivraii*. The bird of the Atlantic coast of the more northern United States is a light colored bird, without blackish streaks on the dorsal feathers and with little or no buffy on the breast and sides, except in fresh plumage, when it often shows as much of this as the more southern race, *Thryospiza maritima macgillivraii*.

The breeding seaside sparrows of the coast of the southeastern United States from North Carolina to northeastern Florida, to which the name *Thryospiza maritima macgillivraii* has been collectively applied, differ from *Thryospiza maritima maritima* in being darker both above and below, with usually heavier streaking above. There are, however, both dark and lighter breeding birds in this area. That these lighter birds are *Thryospiza maritima maritima* and that this subspecies, together with *Thryospiza maritima macgillivraii* breed in the same region between northern North Carolina and southern Florida is a statement anomalous enough to cast suspicion on this supposed fact.

Some time ago, in a conversation with the late Arthur T. Wayne, he called my attention to breeding birds in his collection from South Carolina and Georgia, and remarked that they were not *Thryospiza maritima macgillivraii*, to which race they had been commonly referred. Our discussion on this occasion led to an investigation of the matter, which finally broadened to include all of the Atlantic coast birds. Results of this indicate, after the examination of some 300 specimens, that there are, in fact, four races instead of two on the Atlantic coast of the United States. With the material that has now been available, Griscom and Nichols, who have done such excellent work on this group,[1] would probably have reached the same conclusions as here set forth.

In gathering the material for this examination the writer has made principal use of the collection of the United States National Museum, including that of the Biological Survey, but thanks are due also to Dr. Frank M. Chapman, Mr. Alexander Sprunt, Jr., Mrs. Arthur T. Wayne, and Mr. A. H. Helme, for the use of additional specimens.

**Thryospiza maritima maritima** (Wilson).

NORTHERN SEASIDE SPARROW.

*Fringilla maritima* Wilson, Amer. Ornith., IV, 1811, p. 68, pl. XXXIV, fig. 2 ("the low rush-covered Sea Islands along our Atlantic coast") (type locality as now designated, Great Egg Harbor, New Jersey).

*Subspecific characters.*—Size large; colors pale both above and below, with only a slight buffy tinge on the breast; middle tail-feathers with very narrow, darker shaft streaks or none.

*Measurements.*—Adult male. Wing, 60.7–65.3 (average, 63) mm.; tail, 50.8–58.9 (55.4); exposed culmen, 12.7–14.7 (13.7); tarsus, 22.6–24.1 (23.4).[2]

*Geographic distribution.*—Breeds in the salt marshes of the Atlantic coast of the United States from Massachusetts to extreme northeastern North Carolina (Elizabeth City). Winters from Virginia, south to Florida (Amelia Island) and on the west coast of Florida (Grassy Island in Taylor County).

*Remarks.*—This is the palest of all the Atlantic coast races and also the largest. The original description by Wilson (loc. cit.) was evidently based on the northern bird, commonly regarded as the typical race, because the figure given by Wilson evidently is of the pale colored bird, although no definite locality was mentioned. Wilson says of the bird simply that he found it on "the low rush-covered Sea Islands along our Atlantic coast." In view of the present division of this species into additional races, it seems

[1] A Revision of the Seaside Sparrows; Abstract Proc. Linnaean Soc. New York, No. 32, November 3, 1920, pp. 18–30.

[2] Sixteen specimens from Virginia, North Carolina, and South Carolina (from Ridgway).

desirable to fix the type locality for Wilson's *Fringilla maritima*, and we accordingly select Great Egg Harbor, New Jersey, a region that is known to have been frequented by Alexander Wilson.

**Thryospiza maritima macgillivraii** (Audubon).

MACGILLIVRAY SEASIDE SPARROW.

*Fringilla macgillivraii* AUDUBON, Ornith. Biog., II, 1834, p. 285 ("Charleston, South Carolina").

*Subspecific characters.*—Similar to *Thryospiza maritima maritima*, but upper parts darker and streaked, sometimes heavily, with blackish; the streaks on breast and flanks averaging broader and darker; and the shaft streaks on the middle tail-feathers much broader and more conspicuous.

*Measurements.*—Adult male.[1] Wing, 62–64.5 (63.3) mm.; tail, 56.5–59.5 (57.7); exposed culmen, 13.5–15 (14.1); tarsus, 21.8–25 (23.2).

*Geographic distribution.*—Breeds from the coast of central eastern North Carolina, south to the South Edisto River, South Carolina; and winters also south to Georgia, eastern Florida (Amelia Island), and western Florida (Cedar Keys and Taylor County).

*Remarks.*—The type of Audubon's *Fringilla macgillivraii* (loc. cit.) is a bird in juvenal plumage, but there is apparently no doubt of the proper application of this name to the race that breeds on the coast of North Carolina, and South Carolina, where Audubon's type was obtained. There is, of course, no doubt about the type locality.

Breeding birds from Charleston, South Carolina, and from Pea Island, central North Carolina, are practically identical. Dark juvenal specimens of this race are sometimes very much like those of *Thryospiza maritima fisheri* from the coast of Louisiana, but in the depth of their ochraceous colors are intermediate between *Thryospiza maritima fisheri* and *Thryospiza maritima maritima*. Some of the lighter specimens of *Thryospiza maritima macgillivraii*, particularly immature birds, approach *Thryospiza maritima maritima*, although they are usually without uncertainty to be distinguished. In a series of young *Thryospiza maritima fisheri* from Grand Isle, Louisiana, there is really more individual difference than exists between light and dark individual variants from the Carolina coast, and, although specimens from the Carolinas have been identified as *Thryospiza maritima fisheri*, there is little or no ground for supposing that such specimens represent other than individual variation in *Thryospiza maritima macgillivraii*.

Specimens to the number of 50 have been examined.

**Thryospiza maritima waynei,**[2] subsp. nov.

WAYNE SEASIDE SPARROW.

*Subspecific characters.*—Similar to *Thryospiza maritima macgillivraii*, but smaller, and much lighter, with less blackish marking above, including

[1] Seven specimens from North Carolina.

[2] Named for Arthur Trezevant Wayne, the late well-known ornithologist of Charleston, South Carolina.

the middle rectrices. Similar to *Thryospiza maritima maritima*, but smaller and somewhat darker above; also somewhat darker and usually more extensive grayish below, particularly in worn plumage.

*Description.*—Type, adult male, collection of Arthur T. Wayne; Chatham County, Georgia; June 1, 1907; G. R. Rossignol. Upper parts between dark grayish olive and hair brown, almost uniform, although the feathers of the back are centrally somewhat darker; crown laterally olive brown, centrally deep grayish olive, thus indistinctly striped; lower nape washed with citrine drab; wings and tail between hair brown and fuscous, the tertials darker; rectrices edged with citrine drab, the lesser coverts buffy citrine, greater coverts between buffy citrine and dresden brown; edge of bend of wing and supraloral stripe lemon chrome; superciliary and postocular regions yellowish olive; sides of head and neck dull deep grayish olive; submalar stripe and subocular region darker; malar stripe, chin, center of throat, and middle of abdomen, dull white; remainder of lower parts brownish smoke gray; the breast, sides, and flanks streaked with brownish deep grayish olive; crissum buffy white, streaked with the same color as the streaks of the breast.

*Measurements.*—Adult male.[1] Wing, 56.8–63.5 (61.1) mm.; tail, 51.5–61 (55.5); exposed culmen, 13.8–15.2 (14.4); tarsus, 21.5–24.8 (23.3).

*Geographic distribution.*—Salt marshes on the coast of Georgia and the extreme southeastern corner of South Carolina (Turtle Island near the mouth of Savannah River). Winters also south to Amelia Island, Florida.

*Remarks.*—This form, while it most nearly resembles *Thryospiza maritima maritima*, is, in the breeding season, entirely separated from the range of that northern form by a considerable distance, in which area *Thryospiza maritima macgillivraii* breeds, which is still more decidedly different. Under these circumstances, it seems best to give this light form of the Georgia coast a name of its own, since it can not logically be referred to either *Thryospiza maritima maritima* or *Thryospiza maritima macgillivraii*.

Specimens of this form have commonly been identified as the latter race, but even a superficial comparison suffices to show that they are not the same. A series of 30 specimens of this race have been gathered together, by which the differences and relationships are clearly shown.

### **Thryospiza maritima pelonota,** subsp. nov.

SMYRNA SEASIDE SPARROW.

*Subspecific characters.*—Similar to *Thryospiza maritima macgillivraii* from North Carolina, which it closely resembles in color, but it has no broad shaft stripes on the middle tail-feathers, and is smaller; wing, and especially tail, shorter; the bill and tarsus, however, are of the same size, thus being relatively larger. Similar to *Thryospiza maritima waynei*, but much darker, more grayish (less yellowish olive) brown above, and usually more heavily marked with black on the dorsal region.

[1] Twenty-one specimens from Georgia and South Carolina.

[2] Twelve specimens from northeastern Florida.

*Measurements.*—Adult male.[6] Wing, 59.5–63 (61.1) mm.; tail, 52.8–57.5 (54.5). Exposed culmen, 14.5–16 (15.1); tarsus, 22–25 (23.4).

*Type.*—Adult male, No. 298868, U. S. Nat. Mus.; New Smyrna, Florida; May 16, 1925; A. H. Howell, original number, 2003.

*Geographic distribution.*—Apparently resident in the coast marshes of northeastern Florida, from Nassau County to New Smyrna.

*Remarks.*—This interesting race, which much more resembles *Thryospiza maritima macgillivraii* than it does the intervening *Thryospiza maritima waynei*, is apparently resident in a relatively small area along the coast of northeastern Florida. A good series of 53 specimens shows its above detailed differences from the other races.

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# THE DISCOVERY OF A LIZARD SCELOPORUS TORQUATUS CYANOGENYS COPE IN TEXAS, NEW TO THE FAUNA OF THE UNITED STATES.

BY EDWARD H. TAYLOR.

Regarding *Sceloporus torquatus*, Cope[1] states: "The *S. t. poinsetii* is the only form which has been found within the limits of the United States. The *S. t. cyanogenys* is found so near to our boundary that it is not unlikely to be found within our limits. Indeed I am not sure that I did not see this animal on the rocky banks of the Rio Grande at Laredo, Texas, in 1885."

While collecting in Southern Texas in 1930 I kept an eager lookout for this subspecies, which resulted in its discovery. I encountered it first near Rio Grande City in the hills, one-half mile to the north of the Los Olmos bridge. The specimens were extremely numerous, as many as ten or fifteen might be seen at one time running over the face of the outcropping rock which caps the hills. The largest males seemed most wary and would disappear in deep holes in or under the rocks (rather than in cracks and crevices); the larger females and the younger specimens were less wary and instead of disappearing to safety would frequently hide from sight behind a jutting rock and then expose their heads to view a moment later and allow me to approach close enough to kill them with a 22 caliber rifle using small shot shells. It was usually necessary to wait a considerable time before the males would reappear, only to disappear again for a longer period if they chanced to see or hear me. A series of seventeen specimens were taken at this locality.

At Arroyo El Tigre, west of Rio Grande City, the species was encountered on the dry earth banks where no rocks were to be found. They took shelter in cracks in the earth where they were routed by causing portions of the bank to cave in. Five adult specimens were taken here.

Eighteen miles south of Laredo I took a single specimen at Arroyo Salado. At Eagle Pass, in the cliff on the immediate edge of the town, another specimen was found. This habitat was rocky, much the same type

[1]Cope, Rept. U. S. Nat. Mus. (1898) 349.

as at Rio Grande City, but this and a single young specimen which escaped were the only specimens observed in half a day's collecting.

It will thus be seen that the form extends along the Mexican border for a distance of more than 250 miles. How far north it penetrates into the state is unknown, but very probably it is confined to the drainage of small streams, south of the Nueces drainage basin, which empty directly into the Rio Grande.

The color and markings of this form, while varying in certain color characteristics, maintained a striking uniformity as regards certain of the markings of the head and neck region. The typical markings are as follows: Scales on the head brownish olive with a cream colored spot between the supraocular regions, one on the median parietal, and one on the enlarged lateral scales adjoining the parietals; three spots on the small scales immediately posterior to the parietal region; a broad black collar 4 to 5 scales wide medially, but narrowing laterally, extends across the scapular region, and terminates in front of the fore leg; the scales between the parietals and the posterior median edge of the black collar are from 15 to 17 in number; the black collar is bordered posteriorly by a greenish yellow to cream colored band 1 to 1½ scales wide which terminates laterally at the base of the foreleg; this is, almost without exception, interrupted medially by a single scale which is black or dark green; the black collar is bordered anteriorly by an irregular band of cream, or greenish or bluish yellow, which does not extend as far on the sides as the black collar.

The neck in front of the bands is greenish, bluish or bluish brown with from five to seven cream or bluish cream spots, each covering usually about 2 scales; the sides of the head and neck are greenish, bluish or brownish; a black spot on the head immediately behind the superciliary scales is bordered below by a lighter, usually a cream colored spot; a cream colored line passes from the loreal region below the eye back across the auricular region, appearing very indistinct posteriorly.

The general body color is usually a brilliant greenish blue (often showing metallic iridescence), or (prior to shedding) brownish. On the back the markings are variable; sometimes there are a series of light ocelli or dark blackish or brownish spots; more or less distinct traverse blotches or series of spots may be present.

Two individuals, apparently about to shed, show the brownish coloration without or only with a trace of the greenish-blue coloration. The fore and hind legs are similar to the general body color, the hind legs frequently showing some darker mottling; the coloration of the tail varies remarkably from dull brown to bluish black with a series of 16–18 indefinite lighter bands usually one scale wide which vary from whitish to ultramarine in color; sometimes the bands are almost obsolete.

The *Sceloporus torquatus poinsetti* of western Texas (its eastern limit of distribution seems to be near San Antonio), is very different looking from *cyanogenys*, with a broader flatter body and head, and duller colored markings. The tail has only 8 or 9 light colored bands, usually clearly defined. It also appears to differ greatly in habit. It is extremely shy, and not a single specimen was seen exposed on the surface of the rocks. All specimens

taken were discovered in crevices or under flat rocks superimposed on large boulders.

Two specimens were collected at Helotes, Bexar Co., June 28. A specimen was seen at Devil's River July 18th (the type locality. This is the old Rio San Pedro) but it was not taken. On July 22, 12 specimens were collected among the granite boulders 3 miles southwest of Alpine, Texas; three were found among rocks 14 miles north of Terlingua, Texas, on July 25 and two specimens were collected 6 miles west of Alpine in a rocky cliff on July 26.

The chief characters by which this form may be distinguished from *cyanogenys* are as follows: In *S. torquatus poinsetti* the dark neck band appears to reach farther back on the shoulder and is distinctly narrower (2½–3 scales wide), while in *S. torquatus cyanogenys* the average is 4 to 5 scales wide; the white collars preceding and following the black band are uninterrupted medially and are 2 to 2½ scales wide and usually dull dirty cream to light brownish in color; while in *S. t. cyanogenys* they are usually brilliant cream, yellowish or yellowish green 1 to 1½ scales in width, interrupted medially. The head and body of *poinsetti* appears to be flatter, the hindlegs shorter and the supraoculars larger; the head length and width are more nearly equal than in *cyanogenys;* the light bands on the tail are distinctly fewer, and there is less greenish on the body. The differences show up even more distinctly in the young than in the adults.

To what extent *cyanogenys* differs from the southern and western Mexican subspecies that have been described, I am unable to say, since I lack series of such forms as *torquatus torquatus, t. omiltemanus,* etc. However, for the present, I shall retain Cope's name for this population, which differs distinctly from *poinsetti,* and which represents an addition to the known fauna of the United States.

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# THREE NEW RODENTS FROM ARIZONA AND NEW MEXICO.

BY E. A. GOLDMAN.

Field work in Houserock Valley, Arizona, by Vernon Bailey, in 1929, revealed the presence of a kangaroo rat and a pocket mouse previously unknown from that region. The material was scanty, however, and not very satisfactorily determinable. Additional specimens now available indicate the distinction from their nearest congeners of these forms which, together with a squirrel collected by Mr. Bailey many years ago, are here described.

**Sciurus aberti chuscensis,** subsp. nov.

CHUSCA MOUNTAIN SQUIRREL.

*Type.*—From Chusca Mountains, northwestern New Mexico (altitude 9,000 feet). No. 158553, ♀ adult, U. S. National Museum (Biological Survey collection), collected by Vernon Bailey, October 5, 1908. Original number 8997.

*Distribution.*—Yellow pine forests of the Transition Zone from 7,500 to 9,000 feet altitude on the high mountains of northeastern Arizona and northwestern New Mexico.

*General characters.*—A light grayish member of the *Sciurus aberti* group, with cinnamon rufous dorsal area present but much restricted. Most closely resembling *S. a. mimus* of central northern New Mexico, but upper parts in general lighter gray; head, neck, and shoulders decidedly lighter gray; feet and limbs more extensively white in winter pelage (dusky extending farther down over metacarpus and middle of metatarsus in *mimus* at that season); outer sides of forearms grayer (more or less distinctly blackish in *mimus*). Very similar in general to *S. a. aberti*, but still lighter gray and cinnamon rufous median dorsal area much more restricted.

*Color.—Type:* Upper parts in general finely mixed black and white, producing a grizzled or iron gray effect, the gray tending to predominate on head, neck, and shoulders; cinnamon rufous median dorsal area extending from shoulders to rump but narrow and ill defined; black lateral line

distinct; outer sides of forearms grizzled grayish; under parts and feet white; ears tufted as usual (in winter) in the group, the longer hairs (43 millimeters in length) forming the terminal tuft black, inconspicuously mixed with cinnamon rufous, giving way to prominent cinnamon rufous patches on postero-external margins; tail above black mixed with gray (black due to broad subterminal bands of hairs except at tip where the hairs are black to roots), broadly edged with pure white, below pure white to roots, except at base where it becomes abruptly grizzled gray.

*Skull.*—About as in *S. a. aberti* and *S. a. mimus.*

*Measurements.—Type:* Total length, 510 mm.; tail vertebrae, 275; hind foot, 78. Two adult female topotypes: 520, 540; 250, 255; 75, 72. Skull (type): Occipito-nasal length, 59.8; condylo-basal length, 53.3; zygomatic breadth, 35.5; interorbital constriction, 19.4; breadth of braincase (over audital meatus), 24; length of nasals, 20; maxillary toothrow (alveoli), 10.3

*Remarks.—S. a. chuscensis* is a peripheral form of the *S. aberti* group which although restricted to yellow pine forests has a lengthy range, as a whole, along the backbone of the continent from Colorado to Durango. Few mammals are more closely associated with a single species of tree than are the squirrels of this group with the Rocky Mountain yellow pine (*Pinus brachyptera*). The present subspecies combines the light gray general coloration of *S. a. aberti*, somewhat accentuated, with an approach to the reduced cinnamon rufous dorsal area of the darker form *S. a. mimus.*

*Specimens examined.*—Total number, 12, as follows: Arizona: Fort Defiance (12 miles north), 1; Tunitcha Mountains, 4. New Mexico: Chusca Mountains (type locality), 7.

**Perognathus longimembris arizonensis,** subsp. nov.

HOUSEROCK VALLEY POCKET MOUSE.

*Type.*—From 10 miles south of Jacobs Pools, Houserock Valley, north side of Marble Canyon of Colorado River, Arizona (altitude 4,000 feet). No. 250032, ♀ adult, U. S. National Museum (Biological Survey collection), collected by E. A. Goldman, June 17, 1931. Original number 23589.

*Distribution.*—Houserock Valley, Arizona, and northward at least to Kanab, Utah.

*General characters.*—An ochraceous buffy form of the *Perognathus longimembris* group. Most closely allied to *Perognathus longimembris panamintinus*, but upper parts much richer ochraceous buff; mastoid and audital bullae decidedly larger. Differing from *Perognathus nevadensis* in ochraceous buffy coloration and cranial details.

*Color.—Type:* Upper parts between light ochraceous buff and ochraceous buff, or slightly lighter than capucine buff (Ridgway, 1912), pure along broad lateral line and outer surface of hind limbs, the top of head and dorsum finely and uniformly lined or mixed with black; white auricular spots small (about as in *panamintinus*); under parts white; forelimbs white, except a tinge of buff on outer side of left forearm; hind feet white; tail buffy above, becoming dusky toward tip, pale buffy below. Other

specimens nearly identical, but both forearms more or less distinctly buffy on outer side.

*Skull.*—Very similar in general to that of *P. l. panamintinus* but mastoid and audital bullae decidedly larger, the mastoids expanded posteriorly and projecting farther beyond plane of occiput; interparietal about as long as broad, averaging narrower than in *panamintinus;* dentition about the same. Compared with that of *P. nevadensis* the skull is somewhat larger and more robust, the rostrum and nasals broader, and mastoid and audital bullae much larger.

*Measurements.—Type:* Total length, 137; tail vertebrae, 79; hind foot, 18.5. Average of four adult topotypes: 131 (127–135); 72 (69–72); 18 (18–18.5). *Skull* (type): Occipito-nasal length, 21.4; greatest mastoid breadth, 12.7; zygomatic breadth, 10.9; interorbital breadth, 5.3; length of nasals, 8.2; width of nasals (in front of incisors), 2.3; interparietal, 2.8 x 2.8; maxillary toothrow (alveoli), 2.8.

*Remarks.—P. l. arizonensis* is readily distinguished by rich ochraceous coloration and large mastoids from the other forms of the *P. longimembris* group. It doubtless ingrades with *panamintinus* in the area between Kanab and St. George, Utah. Farther north it may be expected to intergrade with *P. nevadensis* which is obviously a closely allied form of the same group, already known from Kelton, Utah. In general characters this subspecies somewhat approaches *Perognathus apache apache* of the Painted Desert across the Colorado River, but is smaller, the capucine buffy instead of clearer light ochraceous buff coloration is distinctive; and the skull presents a departure especially in the greater projection of the mastoids posteriorly beyond the occiput.

*Specimens examined.*—Total number, 9, as follows:

Arizona: Colorado River Bridge (6 miles west), 2; Houserock Valley, 10 miles south of Jacobs Pools (type locality), 6. Utah: Kanab, 1.

### **Dipodomys microps leucotis,** subsp. nov.

HOUSEROCK VALLEY KANGAROO RAT.

*Type.*—From six miles west of Colorado River Bridge, Houserock Valley, north side of Marble Canyon of Colorado River, Arizona (altitude 3,700 feet). No. 250036. ♂ adult, U. S. National Museum (Biological Survey collection), collected by E. A. Goldman, June 8, 1931. Original number 23570.

*Distribution.*—Known only from the type locality.

*General characters.*—A pale form of the *Dipodomys microps* group, with ears extensively whitish internally; mastoids small; basioccipital broad; nasals broad anteriorly. Similar in general to *D. microps microps* of Owens Valley, California, but ears clothed internally with a mixture of whitish and dusky hairs (more uniformly dusky in *microps*); skull differing in important details. Smaller and somewhat paler than the neighboring subspecies, *Dipodomys microps celsus*, of the Virgin Valley region, with cranial characters quite distinctive.

*Color.—Type* (summer pelage): Upper parts in general near light ochra-

ceous buff, moderately mixed with black, the buffy element purest along sides, becoming lighter in tone on face and top of head; under parts, supraorbital and postauricular spots, fore limbs, hind feet above, usual hip stripes, and tail at extreme base pure white; soles of hind feet from heels to base of toes blackish, the toes white; black facial markings moderately distinct; tail beyond extreme base dark brownish along upper and lower median stripes to near tip where the lengthening hairs are brownish all around, the sides white to subterminal area mentioned; pencilled tip inconspicuously brownish, the dark points of hairs only partially concealing the white beneath.

*Skull.*—Very similar in size and general form to that of *D. m. microps*, but nasals distinctly broader, more expanded anteriorly; basioccipital broader, more completely filling space between audital bullae; supraoccipital usually broader; mastoid and audital bullae about the same. Compared with that of *D. m. celsus* the skull is decidedly smaller in general dimensions; mastoid bullae relatively much smaller; basioccipital, supraoccipital and nasals anteriorly usually actually as well as relatively broader.

*Measurements.—Type:* Total length, 281; tail vertebrae, 170; hind foot, 43.5. Average of three adult female topotypes: 277 (273–281); 166 (162–169); 42 (40–43.5). *Skull* (type): Occipito-nasal length, 34.6; greatest breadth (between outer sides of audital bullae), 23.8; breadth across maxillary arches, 19.7; least width of supraoccipital (near interparietal), 1.9; maxillary toothrow, 5.

*Remarks.—D. m. leucotis* presents a peculiar combination of characters. In color and cranial details it more nearly resembles typical *microps* than its nearer geographic neighbor, *celsus*. At the type locality it is known to inhabit a narrow desert strip between the Vermilion Cliffs and the brink of the Marble Canyon of the Colorado. This strip is separated from the broad open part of Houserock Valley by belts of bare eroded rock surface that may form a more or less complete barrier limiting distribution. Specimens from the open parts of Houserock Valley, which are also inhabited by *Dipodomys ordii cupidineus*, would be very desirable for comparison. Although complete intergradation between the present form and *celsus* is not shown by the material examined, the two agree so closely in essential characters that it seems best to treat the new form as a subspecies.

*Specimens examined.*—Seven, from the type locality.

# INDEX

New names are printed in **heavy type.**